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THE CONDITION OF THE BLOOD IN CHLOROSIS.

NOTES ON THE COURSE AND SECONDARY SYMPTOMS OF CHLOROSIS.

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In the reports of five of the leading New York hospitals, for the year 1888, there were recorded 165 cases of "simple anæmia" in a total of 2250 female medical patients—that is, more than seven per cent. of all the female medical patients were cases of "simple anæmia." When we remember that more of these patients are treated in the out-patient departments than in the hospital wards, the disease seems still more common. In fact, we must consider it one of the most common of diseases.

The term "simple anæmia," as it is used in these reports, is usually synonymous with the term "chlorosis," as it is found in medical literature; we understand chlorosis to be a disease of young women[1] characterized by pallor, weakness, cardiac palpitation, "anæmic" cardiac murmurs, dyspnœa on exertion, disordered menstruation, fugitive pains, abnormal appetite, and constipation; these symptoms diminishing on the administration of iron, or of iron and laxatives.

Although the disease is so common, our knowledge of it is very indefinite. We know very little of its etiology. There is much dispute about the state of the blood, as to whether there is poverty in red corpuscles or only in hæmoglobin, as to the peculiarities of the blood-building under

[1] The few cases which are recorded in boys may be regarded as exceptions.

treatment, and as to what extent the condition of the blood may be used as a guide in diagnosis and treatment.

From a clinical standpoint we find the diagnosis often missed, secondary symptoms are mistaken for the main disease; or, on the other hand, pale patients are treated for chlorosis when the pallor is due to something else.

From a therapeutic standpoint we find improvement general, but many failures to effect a cure.

Hoping to make a slight addition to our knowledge of the subject and to demonstrate the possibility and desirability of more general blood examination for clinical purposes, I wish to record the results of the study of thirty-one cases of chlorosis as they have been treated in Roosevelt Hospital, New York City. No cases are mentioned which did not have enough of the above-mentioned symptoms to place the diagnosis beyond doubt.

The blood examinations were made to show the number of red corpuscles per c.mm., and the percentage of hæmoglobin during the different stages of the disease; certain observations of the size and shape of red corpuscles and of the number of white corpuscles were also made. The corpuscle numeration was done with the hæmacytometer of Thoma-Zeiss. Five per cent. seems a fair allowance for errors; this is the allowance granted by Lyon and Thoma ([1])[1]. Ten estimations of blood from the same person gave results well within this limit. Two hundred squares were counted for each estimation. The instrument used gave 5,200,000 corpuscles per c.mm. as the average of ten counts from blood of healthy men and boys. In order to eliminate any errors which might come from the different methods of different observers the estimations were all made by the writer.

The patients were generally given five-grain Blaud's pills (iij to vij t. i. d.) and oxygen inhalations (gallons x b. i. d.), with symptomatic treatment for constipation and other by-symptoms.

Changes in the Number of Red Corpuscles.—It is my purpose to consider, first, the number of corpuscles when the patients were admitted to the hospital, and the relation between this number and the condition of the patients; next, the changes under treatment and their relation to the patient's condition; and, finally, the number after treatment.

There are thirty-four series of red corpuscle estimations, as three of the thirty-one patients were treated for relapses.

On admission the number of red corpuscles varied between 5,100,000 and 1,800,000 per c.mm.; the distribution between these points was fairly regular, as may be seen in this table:

[1] The small figures in parentheses refer to the bibliography.

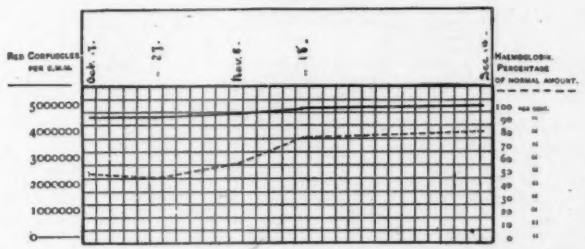
NUMBER OF RED CORPUSCLES ON ADMISSION.

5,100,000			per cubic millimetre,		1	patient.
4,500,000	to	5,000,000	"	"	4	patients.
4,000,000	"	4,500,000	"	"	7	"
3,500,000	"	4,000,000	"	"	5	"
3,000,000	"	3,500,000	"	"	5	"
2,500,000	"	3,000,000	"	"	6	"
2,000,000	"	2,500,000	"	"	5	"
1,800,000			"	"	1	patient.

Average 3,256,000

In a general way, the severity of the symptoms corresponded with the paucity in red corpuscles, but there were many exceptions to this. It is

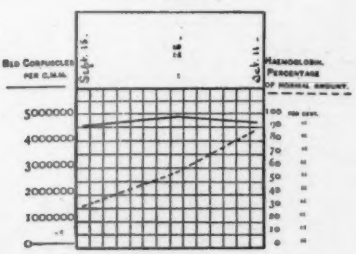
CHART 1.



Case 1. The continuous upper line indicates the number of red corpuscles, the broken lower line indicates the percentage of the normal amount of hæmoglobin.

to be especially noticed that many of the patients who had a good number of corpuscles were suffering greatly from the disease—*e.g.*, cases 1,

CHART 2.

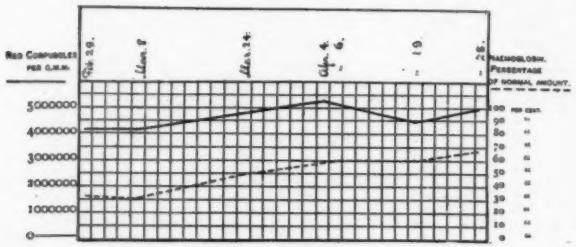


Case 3.

2, 3, and 4, who had each more than 4,500,000, and Cases 5 and 6, and 7 on first admission, who had each more than 4,000,000; yet these seven

cases were among the severer ones in the series; two of them could not walk more than a city block at an ordinary gait without very great exhaustion. Again, Case 8, on first admission, had 2,812,000; eleven months later she was treated for a relapse, and then had on admission 4,162,000. The difference in her symptoms on these two admissions did not at all correspond with this difference in the number of red corpuscles.

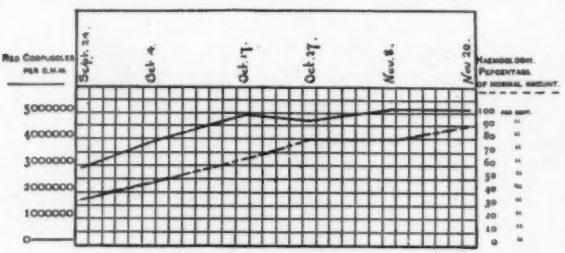
CHART 3.



Case 7. First admission.

A similar condition existed in Case 7, who, on first admission, had 4,204,000 red corpuscles per c.mm., and, on admission for a relapse seven months later, 2,932,000, and her symptoms were fully as bad on the first as on the second admission.

CHART 4.



Case 7. Second admission.

During the treatment there was an increase in the number of red corpuscles, but there were numerous variations and irregularities in this increase, ten cases at some stage of the treatment showing a diminution of 300,000 or more per c.mm.; this diminution was usually not from the number on admission but from the number attained at some time while under observation.

RECORD OF BLOOD EXAMINATIONS.

	Red corpuscles, per c. mm.	Hæmoglobin, percentage of normal amount.	
Case 1 (see chart).			
Case 2	4,684,000	*45 per cent.	May 3.
	4,626,000	*56 "	May 18.
	4,328,000	*55 "	May 29.
	5,078,000	*70 "	June 6.
Case 3 (see chart).			
Case 4	4,660,000	. . . . .	March 29.
	4,900,000	. . . . .	April 5.
	5,200,000	. . . . .	April 14.
	*5,650,000	. . . . .	April 19.
Case 5	4,350,000	45 per cent.	June 20.
	4,800,000	70 "	June 29.
	4,800,000	95 "	July 14.
Case 6	4,422,000	65 "	Nov. 3.
	*3,988,000	65 "	Nov. 14.
	4,796,000	65 "	Nov. 26.
	4,464,000	75 "	Dec. 22.
Case 7 (see chart).			
Case 8 (first admission) .	2,812,000	30 per cent.	Nov. 22.
	3,054,000	40 "	Dec. 6.
	3,660,000	50 "	Dec. 11.
	4,876,000	60 "	Dec. 27.
	4,798,000	70 "	Jan. 4.
Case 8 (second admission)	4,162,000	50 "	Oct. 17.
	4,476,000	*55 "	Oct. 27.
	4,622,000	68 "	Nov. 8.
	4,984,000	80 "	Nov. 20.
Case 9 (see chart).			
Case 10 (see chart).			
Case 11	2,542,000	25 per cent.	Jan. 30.
	3,452,000	*45 "	Feb. 15.
	4,990,000	*85 "	March 7.
	3,982,000	75 "	March 19.
Case 12 (first admission) .	1,976,000	. . . . .	March 7.
	2,196,000	. . . . .	March 8.
	2,400,000	. . . . .	March 16.
	4,400,000	. . . . .	March 29.
Case 12 (second admission)	2,184,000	18 per cent.	Aug. 15.
	2,086,000	*18 "	Aug. 21.
	4,080,000	45 "	Sept. 8.
	4,650,000	75 "	Sept. 22.
	4,324,000	62 "	Oct. 4.
	4,086,000	68 "	Oct. 17.
Case 13 (see chart).			
Case 14	4,308,000	50 per cent.	Dec. 14.
	5,106,000	*45 "	Dec. 23.
	. . . . .	*38 "	Jan. 6.
	. . . . .	*55 "	Jan. 16.
	4,706,000	*80 "	Jan. 30.
Case 15	5,026,000	*60 "	March 12.
	. . . . .	65 "	March 27.
	4,206,000	*85 "	April 6.
	4,598,000	*62 "	April 16.
	4,926,000	*65 "	April 30.
Case 16	3,274,000	40 "	Nov. 16.
	3,066,000	50 "	Nov. 26.
	3,946,000	75 "	Dec. 10.
	4,798,000	80 "	Dec. 22.
	4,540,000	75 "	Jan. 5.

* Verified by a second examination.

	Red corpuscles. per c. mm.	Hæmoglobin, percentage of normal amount.	
Case 17	2,456,000	*30 "	Feb. 20.
	4,380,000	*50 "	March 7.
	4,600,000	. . . . .	April 3.
	4,810,000	*65 per cent.	April 16.
	4,832,000	*65 "	May 3.
Case 18	2,574,000	20 "	Nov. 14.
	4,198,000	55 "	Nov. 30.
	4,674,000	60 "	Dec. 15.
Case 19	2,700,000	*23 "	Sept. 16.
	3,600,000	50 "	Sept. 26.
	3,722,000	*70 "	Oct. 6.
	4,228,000	75 "	Oct. 17.
	4,718,000	*75 "	Oct. 26.
	5,084,000	80 "	Nov. 4.
Case 20	4,050,000	43 "	Nov. 9.
	4,374,000	58 "	Nov. 20.
	4,592,000	*68 "	Nov. 30.
	4,888,000	75 "	Dec. 15.
Case 21	3,114,000	30 "	Nov. 16.
	2,902,000	35 "	Nov. 26.
	3,394,000	45 "	Dec. 6.
	3,960,000	60 "	Dec. 11.
Case 22	3,992,000	*37 "	June 25.
	3,996,000	*65 "	July 10.
	5,480,000	*75 "	July 20.
Case 23	2,332,000	34 "	Nov. 9.
	3,888,000	43 "	Nov. 20.
Case 24	3,342,000	31 "	Nov. 5.
	3,384,000	50 "	Nov. 17.
Case 25	4,104,000	55 "	Sept. 20.
	4,790,000	60 "	Sept. 29.
	. . . . .	75 "	Oct. 11.
Case 26	3,072,000	45 "	Dec. 19.
	4,840,000	52 "	Dec. 30.
	4,750,000	50 "	Dec. 31.
Case 27	3,620,000	. . . . .	March 7.
	4,300,000	. . . . .	March 30.
	5,200,000	. . . . .	April 6.
Case 28	3,600,000	. . . . .	March 30.
	3,900,000	. . . . .	April 6.
	4,876,000	. . . . .	April 14.
Case 29	3,676,000	. . . . .	March 29.
	3,900,000	. . . . .	April 6.
	4,120,000	. . . . .	April 14.
	5,000,000	. . . . .	April 21.
	4,840,000	. . . . .	April 29.
Case 30	2,300,000	. . . . .	April 21.
	3,800,000	. . . . .	April 30.
	4,100,000	. . . . .	May 10.
	4,620,000	. . . . .	May 20.
Case 31	3,600,000	. . . . .	May 3.
	4,600,000	. . . . .	May 13.
	5,000,000	. . . . .	June 2.
	. . . . .	*85 per cent.	June 8.
	5,100,000	. . . . .	June 14.
	5,400,000	90 per cent.	June 27.

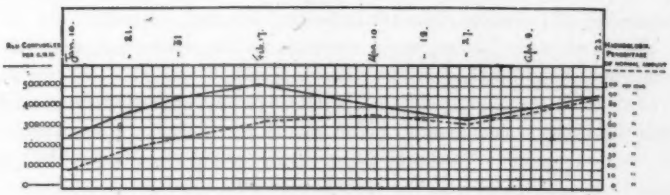
* Verified by a second examination.

DIMINUTION IN RED CORPUSCLES DURING TREATMENT.

Case	2,	4,684,000	to	4,328,000	per	cubic	millimetre.
"	6,	4,796,000	"	4,464,000	"	"	"
"	7,	5,324,000	"	4,350,000	"	"	"
"	9,	5,180,000	"	4,354,000	"	"	"
"	10,	5,064,000	"	3,428,000	"	"	"
"	11,	4,990,000	"	3,982,000	"	"	"
"	12,	4,650,000	"	4,086,000	"	"	"
"	13,	2,662,000	"	2,354,000	"	"	"
"	14,	5,106,000	"	4,706,000	"	"	"
"	15,	5,026,000	"	4,206,000	"	"	"

These variations are best shown in the charts and tables of blood estimations. Except in Cases 10, 11, and 12, the symptoms did not correspond with them, and in 10 and 11 the change in symptoms was not proportionate to that in corpuscles. The fallacy of judging the condition of the patient from the number of corpuscles would have been great; for instance, Cases 1, 2, and 3 would have been declared free from anæmia if the blood test had consisted simply of a corpuscle enumeration, yet these three cases averaged only 41 per cent. of the normal amount of hæmoglobin and were suffering greatly from anæmia. Again, Case 10 would have been pronounced better February 17th than April

CHART 5.



Case 10.

23d, yet she had 23 per cent. more hæmoglobin April 23d, and was much stronger and better. From these considerations we can endorse Hayem's (2) statement that "the red corpuscles are a very changeable element of the blood." The simple estimation of their number is certainly of very little clinical value in chlorosis. On discharge from the hospital the condition was as follows:

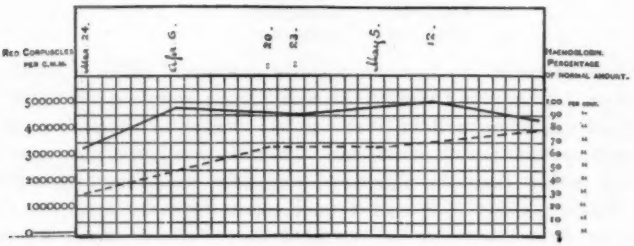
NUMBER OF RED CORPUSCLES ON DISCHARGE.

More than	5,000,000	. . . . .	per	cubic	millimetre,	8	patients.
	4,500,000	to 5,000,000	"	"	"	17	"
	4,000,000	" 4,500,000	"	"	"	4	"
	3,500,000	" 4,000,000	"	"	"	4	"
	3,400,000	"	"	"	"	1	patient.

Average 4,704,000

It thus appears that it is usually easy to bring the number of red corpuscles above 4,500,000 per c.mm. The five cases who had less than 4,000,000 on discharge, left the hospital before treatment was completed. Of the four who had between 4,000,000 and 4,500,000, one was pregnant and one left before treatment was completed; but there were two (Cases 9 and 6) who were treated respectively nine and seven weeks, they had a diminution in the number of corpuscles before discharge.

CHART 6.



Case 9.

Change in Shape and Size of Red Corpuscles.—Blood from seven patients who were notably anæmic was drawn into a one per cent. watery solution of osmic acid; it showed large, small and irregular-shaped red corpuscles, the average diameter appearing less than normal.

The number of white corpuscles was estimated in twelve patients. The ratio was one white to about four hundred red.

Changes in the Hæmoglobin.—The hæmoglobin estimations were made with the Fleischl hæmometer. The results are given in percentages of the normal amount of hæmoglobin—*i.e.*, 100 per cent. indicates the normal, 50 per cent. one-half the normal amount. Numerous estimations of the blood of healthy persons have convinced me that the standard of the instrument used is correct. The results of two series of ten consecutive examinations of the blood of one person correspond within 4 per cent.

With this instrument I made twenty-eight series of hæmoglobin estimations. The results were much more uniform and much more satisfactory than in the enumeration of the blood corpuscles; the severity of the symptoms was found to correspond pretty closely with the poverty in hæmoglobin; hence, as a guide to the condition of the patient, the estimation of the hæmoglobin is much more valuable than the enumeration of the blood corpuscles.

An initial poverty in hæmoglobin was universal; so was an increase under treatment, and this increase was fairly regular, showing less variation than in the corpuscles.

This table shows the

PERCENTAGE OF HÆMOGLOBIN ON ADMISSION AND ON DISCHARGE:

	Admission.	Discharge.
91 per cent. to 100 per cent.	0	1
81 " " 90 "	0	5
71 " " 80 "	0	11
61 " " 70 "	2	5
51 " " 60 "	3	4
41 " " 50 "	5	2
31 " " 40 "	9	0
21 " " 30 "	5	0
15 " " 20 "	3	0
	Average 37½ per cent.	Average 72½ per cent.

It is noticeable that the percentage on admission was very low; more than one-half the cases had less than 40 per cent., three cases less than 20 per cent. of the normal amount, a diminution in hæmoglobin as great as that usually found in pernicious anæmia.

It is also noticeable that the hæmoglobin rarely reached the normal; only 6 of the cases registered above 80 per cent. when discharged. The 6 patients who registered below 61 per cent. left the hospital before treatment was completed; the same is true of 9 of the 16 who were between 60 per cent. and 81 per cent., the tenth was pregnant, the eleventh had a complicating nephritis which delayed convalescence, and the twelfth had a thrombosis of the internal saphenous vein, but there were 4 who were treated 7 weeks or more with no apparent cause for the failure to bring the hæmoglobin percentage higher, viz., Cases 12, nine weeks, and Cases 6, 11, and 15, each seven weeks. A similar condition was reported by Gräber (3) in 28 cases of chlorosis. The hæmoglobin did not reach the normal under treatment.

It is to be further noticed that the poverty in hæmoglobin always exceeded that in red corpuscles. This has often been stated as a constant condition in chlorosis; it certainly sometimes occurs in other diseases—*e. g.*, chronic phthisis and chronic Bright's disease.

In these cases the amount of hæmoglobin has been by far the best single guide there was to the patient's condition; whenever there has been a marked disparity between hæmoglobin and corpuscles the symptoms corresponded with the hæmoglobin, not with the corpuscles; in fact, the number of corpuscles gave a very poor guide to the patient's condition, and the percentage of hæmoglobin a very good one.

This is very important; the hæmoglobin estimation is an easy one; the corpuscle estimation is a tedious one. It takes three-quarters of an hour to make a careful corpuscle estimation, and one would hardly be willing to depend on a single count unless he had had considerable experience in the use of the instrument; moreover, a microscope must

be used, and this is often a great inconvenience. These difficulties are so great that the number of corpuscles is not likely to be estimated extensively in clinical work.

On the other hand, the hæmoglobin estimation can be made in five to ten minutes, and duplicated in another five minutes, if desired; the instrument is small and easily carried, the technique is simple, no microscope is needed.

I see no reason why the hæmometer should not be one of the ordinary diagnostic instruments used by general practitioners.

There is good authority for the belief that the hæmoglobin estimation gives a good indication of the real condition of the blood.

Barbacci (4) estimated the hæmoglobin, but not the corpuscles, in twenty-eight cases of chlorosis, and concludes that the percentage of hæmoglobin indicates the real amount of the disease.

Hayem (2) states that the determination of the coloring power alone gives the exact measure of the degree of anæmia if the volume of the blood is normal.

Henry (5): "The principal point to be determined in an estimation of the blood is the functional value of the red corpuscles, which bears a direct ratio to the amount of hæmoglobin in each."

Jaccoud (6): "The fundamental lesion is the diminution in hæmoglobin, not the diminution in the number of red corpuscles."

We may thus feel that in the amount of hæmoglobin we have a good guide for our diagnosis and treatment, a guide which is reliable and which is now so easily accessible that it can be used in general practice. This certainly marks a step of advancement in this subject.

Oppenheimer (7) and Gräber (3) announce that they consider a normal number of red corpuscles and a diminution in hæmoglobin the characteristic blood condition in chlorosis. This varies so much from the generally accepted reports that it may be considered somewhat in detail.

Duncan (8), in 1867, reported the corpuscle number normal and the hæmoglobin diminished in 3 cases of chlorosis, but later observers consider that there may or may not be a reduction in red corpuscles, mild cases often showing no marked reduction. Oppenheimer's cases accorded with this in that they were mostly mild. Many of Gräber's cases must also have been mild, as the hæmoglobin averaged 52 per cent. In any event, positive evidence over-weighs negative, and numerous observers have found a diminution in corpuscles.

Quincke (9) states that there must be two kinds of chlorosis—one with a diminution in both hæmoglobin and corpuscles, and one with a diminution in hæmoglobin and a normal number of corpuscles. Henry (5): "In severe cases (of chlorosis) the number of corpuscles and the percentage of hæmoglobin are both reduced."

Flint (10) states that there may, or may not, be a reduction in the num-

ber of red corpuscles, but that there usually is. Gowers ([17]), Henry ([5]), Baxter and Wilcox ([12]), record 7 cases with an average corpuscle count of 3,250,000. Laache, Hayem, and Coupland are quoted ([5]) ([18]) as recording 38 cases, with an average corpuscle count of 3,450,000. Jaksch ([14]), Hartshorne ([15]), Weiss ([16]), Immerman ([19]), all state that the corpuscles are sometimes diminished. Again, Oppenheimer considers the number of corpuscles normal in those cases who have 4,000,000 per c.mm. This is certainly much lower than most observers put it. Sörensen ([20]) found 4,820,000 (the average) in 14 healthy young women, 15 to 28 years of age. Henry ([5]) compares corpuscles in chlorosis with 5,000,000 as the normal. Gowers ([17]) gives 5,000,000 as an average; Vierordt ([21]), 4,500,000 for women. In the cases which I record there was regularly an increase under treatment, even when there were more than 4,000,000 per c.mm. Therefore, on the basis of the results of other observers, there was really a diminution in red corpuscles in most of Oppenheimer's cases.

We feel confident that a normal number of corpuscles is not characteristic of chlorosis, but that such a discussion could have arisen at this time emphasizes the fact that corpuscle enumeration gives an uncertain guide; it throws us more and more onto the hæmoglobin estimation, and the value of the hæmoglobin estimation is the point which we wish especially to bring forward. The more hæmoglobin estimations are recorded the stronger is the evidence of their value. The more corpuscle enumerations are recorded the stronger is the evidence of their irregularity.

The results of the blood examinations may be summarized as follows:

1. There was usually an initial paucity of red corpuscles.

2. Under treatment it was easy to bring the red corpuscles to 4,500,000 per c.mm., and frequently higher.

3. The severity of the symptoms did not regularly correspond with the paucity of red corpuscles.

4. In the severer grades microcytes, megalocytes, and poikilocytes were found, the average diameter of the corpuscles being below the normal.

5. The reduction in hæmoglobin always exceeded that in red corpuscles and occasionally there was great poverty in hæmoglobin and very little in corpuscles.

6. The amount of hæmoglobin was a far better guide to the severity of the disease than the number of red corpuscles; it is so good a guide in chlorosis as to be sufficient in blood examination for ordinary clinical purposes.

7. The hæmoglobin increased regularly under treatment, but it was difficult to bring it above 85 per cent. of the normal.

8. No change was noticed in the white corpuscles.

These results do not teach us the primary cause of chlorosis; but we do not yet know the cause of many diseases, nephritis or pleurisy with

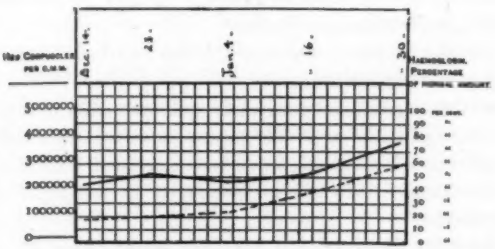
effusion, for instance, although we do know something about the pathological conditions when these diseases are established, and are guided in our treatment by this knowledge. Now regarding the blood as a tissue with cells and a fluid intercellular substance (Virchow ([22]), Prudden ([23]), Foster ([24])), we are in the same relation to chlorosis that we are to the other diseases; we do not know the cause, but we do know the condition of the blood—at least we can know it as well as we do that of the kidneys and pleura in nephritis and pleurisy, and we should examine the blood in suspected cases as regularly as we examine the chest and urine of patients suspected of having the other diseases.

It is only by continuous observations and records that a groundwork has been gained for further advances in medical science; we now have a knowledge of the state of certain elements in the blood which furnishes a fair guide in diagnosis and treatment, general blood examinations are possible and we have a better groundwork for solving other problems in relation to chlorosis.

The question of treatment in chlorosis is still an open one. The improvement which regularly follows the administration of iron has led to its use almost as a specific, but the Roosevelt Hospital reports show a large proportion of failures to produce a complete and permanent cure.

In these cases the aim was to make a comparative study of the course of the blood-changes; therefore, the treatment was kept as nearly uniform as possible: Five-grain Blaud pills, iij to vij t. i. d. Oxygen inhalations, gallons x b. i. d. Still there were some variations from this treatment which affected the blood-changes.

CHART 7.



Case 13.

Case 13 received December 14th to January 4th sodii bicarb. gr. x and hydrarg. chlorid. corrosiv. gr. $\frac{1}{8}$ t. i. d. and inhalations of oxygen x gallons b. i. d., but no iron, and during this time there was hardly any change in the blood.

Case 14 received hydrarg. chlorid. corrosiv. gr. $\frac{1}{16}$ and potas. iodid. gr. x t. i. d. from December 14th to January 6th, and inhalations

of oxygen x gallons b. i. d. from December 19th to January 6th. During this time her blood deteriorated.

Case 12 on second admission was given manganese binoxide, gr. ij to iv t. i. d., August 15th to 21st, with no improvement in the blood.

All these cases showed rapid improvement when given Blaud's pills and oxygen.

Case 8 on first admission did not do well on ordinary treatment, but improved rapidly on a laxative iron mixture. On returning with a relapse she was kept on laxatives alone for ten days, following the theory of Sir Andrew Clark ([25]) and M. Duclos ([26]), that chlorosis is the result of feculent retention and decomposition in the intestines. During these ten days the improvement was very slight, but it became rapid on the addition of iron and oxygen.

Case 10 (see chart) showed a remarkable improvement on rhubarb, soda, mint, and ipecac:

℞.—Rhei pulv.	gr. j.
Sodii bicarb.	gr. v.
Ipecac pulv.	gr. ½.
Olei menth. piperit.	gr. $\frac{1}{20}$.

Make 1 tablet. Sig.—1 four times daily.

She had been treated two and one-half months on Blaud's pills and oxygen, and during the last month the blood had deteriorated and the chlorotic symptoms had increased. The above prescription was then substituted for the iron and oxygen and there was a steady improvement.

Case 3 had no oxygen and did well.

Case 9 had no oxygen for twenty-nine days and did well.

Case 15 had no oxygen and did not do well.

These observations confirm the value of Blaud's pills, but their value is so well established that there is no need for further proof. The point which is of most importance is that so many of the cases cannot be carried to complete recovery and so many have relapses. Improvement is general, complete recovery is rare. Few of the cases had normal blood when discharged, and at least seven of the thirty-one patients had relapses. Nos. 7, 8, and 12 had relapses which are recorded above. No. 7 has had a second relapse since. Nos. 6 and 23 have each had two similar previous attacks within four years, each lasting many weeks.

Case 10 has been treated four times for chlorosis in Roosevelt Hospital: August, 1885, to October, 1885; December, 1885, to January, 1886; November, 1886, to December, 1886; January, 1888, to April, 1888.

Case 24 had a decided attack eight years previously, and in the meantime had continually suffered from chlorotic symptoms.

Some of these cases were taking iron much of the time between relapses. Numerous similar cases are recorded: ([37]), ([28]), ([29]).

It is in these cases that the disease assumes its most serious aspect. If a young girl has an attack of chlorosis which lasts two or three months and ends in complete recovery, it is not a serious matter. She may have to stop school for a time and her friends may become anxious, but such an attack has no permanent bad effect. On the other hand, when the symptoms continue for years the results are very serious. The patient becomes a semi-invalid, all employment which requires ordinary health or strength has to be given up, attacks of gastric disturbance or headache, or pain, or palpitation, or vertigo, follow each other, and then hysterical symptoms arise which complete the ruin of a useful member of society.

I was consulted recently by a patient whose relatives were suspicious of a cancer of the tongue. The tongue was simply irritated by decaying teeth. She said she was unable to sit in a dentist's chair long enough to have the teeth filled, and the idea of having them extracted was quite unbearable. She always carried a bottle of valerian with her, and could not so much as make a call without using it. She was pale and weak and subject to attacks of palpitation and dyspnœa and indigestion. At the age of twenty-five she was a wreck, nervously and physically. Her history was as follows: Eight years ago she had a perfectly straightforward attack of chlorosis. She had recovered from the acute symptoms, but had gone on with the subacute ones until she reached the stage depicted. She had taken iron in various forms, but had always been weak, pale, and miserable, and had grown more and more nervous and hysterical. When seen she had 70 per cent. the normal amount of hæmoglobin. If the original chlorosis could have been treated successfully, and if the tendencies to relapse could have been controlled, she need not have fallen into her present condition, but it is in just these cases that our treatment is defective. We certainly are in great need of further studies as to the best method of treating these long-continuing cases. There is no lack of remedies which are recommended. Arsenic ([32],[6]), albuminate of iron ([39]), hydrochloric acid after iron ([40]), alkalies and mild tonics ([32]), aloes ([32]), laxatives ([25],[26]), sulphur ([41]), phosphorus ([18]), large doses of iron as opposed to small ones ([42]), and oxygen inhalations are among them. We have tried many of them without reaching the desired result. There is no doubt that a skilful selection from these remedies together with good hygienic surroundings would save many cases, but the fact still remains that many are not treated successfully. It would be interesting to know whether there is any direct relationship between these prolonged attacks and pernicious anæmia.

There are certain considerations in the etiology and symptoms of the

disease which bear on the diagnosis. The age of the patient, the color of the face, pain, severe cardiac or digestive symptoms may any of them obscure the diagnosis. The facts which seemed of especial importance may be grouped as follows:

Occupation.—All did housework, or were shop or factory girls.

Age.—

16 years,	2 patients.		22 years,	5 patients.	
17 "	5 "		23 "	3 "	
18 "	2 "		24 "	1 patient.	
19 "	4 "		25 "	1 "	
20 "	4 "		26 "	1 "	
21 "	3 "				

Fourteen—nearly one-half—were 21 or older. This is significant, as chlorosis is sometimes called a disease of puberty ([5]). However, Gowers ([17]), Gibson ([30]), and Jaccoud ([6]) record cases aged respectively 34, 30, and 25 years; Sörensen records cases from 17 to 34 years. Many of the older patients had some of the secondary symptoms prominent.

Nativity.—Irish, 24; French, 1; Welsh, 1; Swedish, 1; American, of foreign parentage, 4. Eleven had been in this country two years or less.

The only etiological factors which seem of importance in these statistics are that the average age was high and that many of the patients had not long been in America.

Family Histories.—Negative, excepting that in five cases a parent had died of phthisis.

Personal Histories.—No previous history of venereal, cardiac, renal, or serious pulmonary disease; no recent malarial symptoms; two cases had had slight attacks of rheumatism.

Nutrition.—All well nourished.

Color.—All pale when admitted; fifteen had a chalky white hue; under treatment a flush soon came to the face which was very deceptive; a chlorotic girl with one-half the normal amount of hæmoglobin might look ruddy while a phthisical patient with the same amount would look very pale. As the color is apt to be the first guide in diagnosis this peculiarity is important. Oppenheimer ([7]) has especially called attention to the fact that a pale color is no fair indication of the state of the blood, pale patients often having normal blood, but the converse is also true. Many patients with a flush on the face, or even a good color, have blood much impoverished; hence the importance of blood examinations in all doubtful cases is very evident.

Dyspnœa and palpitation of the heart on exertion were present in all cases.

Weakness was a very prominent symptom; nine of the patients could not walk a city block without much distress.

Attacks of vertigo were present in twenty-five cases.

Attacks of syncope were present in eight cases.

One case, 21, was brought into the hospital in an unconscious condition and remained so for two days; urine and feces were passed involuntarily; she had been incoherent for several days before admission; she had had no previous similar attacks and showed no tendency to a recurrence; there were no convulsions; she did well under iron and oxygen.

Another case, 24, was brought in suffering apparently from dementia; she had very marked symptoms of chlorosis; her mental condition improved rapidly when Blaud's pills and oxygen were administered.

In dispensary practice I have seen an anæmic patient show unmistakable signs of dementia, which disappeared when iron was administered.

Menstruation ceased in eleven cases, it was diminished in ten, irregular in three, irregular and diminished in three, and normal in four cases; a return under treatment was recorded in seven cases.

Ophthalmoscopic examinations were made in twenty-six cases and no retinal hemorrhages were seen.

Pain was a very common symptom, in four cases it was the symptom most complained of; headache was frequent in twenty-four cases; oppression in chest, cramps in legs and abdomen, epigastric, lumbar, iliac, and general shooting pains were continually recorded. In every case the pain disappeared when the anæmia was relieved, while treatment immediately against it was futile.

The digestive functions were very generally disturbed; twenty-six patients had poor appetites, fourteen of them had cravings for peculiar articles of diet, such as pickles, lemons, ice, chalk, etc.

Vomiting was common, very severe in eight cases—so severe as to be the main complaint. One of them had vomited blood and another "dark fluid." Here, again, we have a misleading symptom; the patients certainly had the symptoms of gastritis or of gastric ulcer; some of them had been treated for the gastritis, but without good result. However, in every case the gastric symptoms disappeared as the blood improved under the routine treatment.

When we hear of chlorotic patients being rigidly dieted, or having their stomachs washed out for their gastric disturbances or being blistered or cauterized for their pains, we feel that there is really much need for giving attention to these secondary symptoms and to the fact that they disappear when the anæmia is relieved.

The relation between constipation and chlorosis has recently been much considered, Sir Andrew Clark ([25]) claiming that "feculent retention is not only the rule but the characteristic sign" in chlorosis, and that the leucomaines and ptomaines produced in the intestine and absorbed are the real cause of the disorder; he quotes Bouchard as esti-

mating that enough alkaloids are formed in the intestine in twenty-four hours to kill a man if absorbed.

M. Duclos ([28]) considers chlorosis eminently a result of auto-infection from decomposition of fecal matter in the intestine. However this may be, constipation was certainly the rule in these cases; twenty-two were constipated and the improvement was much retarded when the constipation was not relieved. In the one case (8) where laxatives were given for a time without iron there was little improvement. In another case (10, referred to above) laxatives and stomachics succeeded when iron had failed.

Physical Examination.—An anæmic heart murmur was present in all the cases but one (6); it was systolic, heard at the base, usually most distinct at the second left intercostal space. It was also heard at the apex in fourteen cases; transmitted to the left from the apex in eight cases. The apex murmur disappeared after treatment in all cases. The base murmur disappeared in all but seven; in these seven it was faint. They all left the hospital before complete recovery.

Cardiac dilatation in chlorosis has been often recorded. Stark ([31]), Duclos ([26] *a*), Duckworth ([32]), Irvine ([33]), Forchheimer ([34]), and Jacoby ([39]), all report it.

I only attempted to record the position of the apex beat. In twenty-six cases it was in the fourth instead of the fifth space, the average distance from the median line being three inches. It was reported at various stages of the disease in twenty-two cases; in fifteen it was constant, in four it was slightly nearer the sternum on discharge than on admission, in three slightly nearer on admission than on discharge.

In eleven cases a continuous venous hum (bruit de diable) was heard in the vessels of the neck. It disappeared in all but two.

Physical examination of the lungs was negative in all cases.

The area of hepatic dulness was recorded in twenty-six cases; it was normal.

The area of splenic dulness was recorded in fourteen cases; it was slightly increased in one.

The temperature was frequently a little above the normal. The average oral temperature for all the cases on admission was 99.3° F. There was generally an afternoon rise of a fraction of a degree. There was a marked tendency to exacerbation under each slight provocation.

Urine.—Eight cases showed a trace of albumin, which disappeared; in other respects the urine was normal. The specific gravity averaged 1017. Jaccoud ([6]) records a case of temporary albuminuria; Molliere ([43]): thirty cases in whom the urea and urine were normal.

Œdema of the feet and legs was present in fourteen cases; of the face and eyelids in one case. It was temporary in every case.

Thrombosis of the internal saphenous vein was present in one case; recovery was apparently complete. I find cases of thrombosis in chlorosis reported by Rendu ([35]), Hanot and Mathieu ([36]), Jandot ([37]), and Tuckwell ([38]).

Epistaxis occurred in eight cases.

To review these clinical studies, we notice many points which bear on the diagnosis. Patients are often found over twenty years of age, and occasionally over twenty-five, who are manifestly suffering from chlorosis and who do not differ from the younger ones, excepting that the disease has usually been of longer standing, that it yields less readily to treatment, and that the secondary symptoms are especially prominent. The color of the face may be deceptive.

There are often secondary symptoms which obscure the diagnosis. Pain, vomiting, vertigo, even unconsciousness for several hours, mental disturbance, amenorrhœa, palpitation, œdema, temporary albuminuria, thrombosis, are all capable of doing so.

Among these cases the pain has led to the diagnosis of rheumatism and "neuralgia;" the vomiting and other gastric disturbance, to that of gastritis or possible gastric ulcers; the mental disturbance, to that of dementia; the palpitation and cardiac murmurs, to that of endocarditis; the œdema and albuminuria, to nephritis. Yet these symptoms all disappeared under treatment for chlorosis and they all are common in chlorosis.

The diagnosis of a straightforward case of chlorosis is simple. It is often difficult when there are marked secondary symptoms, and the effects of a wrong diagnosis are serious. If a patient who simply needs Blaud's pills is told she has Bright's disease and treated for the same, she and her friends are made miserable, and instead of being benefited she is injured. If she is burned, or blistered, or dieted, or has her stomach washed out, she suffers at the hands of her physician as truly as does a patient at the hands of a surgeon when she endures an unnecessary operation.

Furthermore, judging from observations not recorded here, we believe that there are hundreds of cases where a moderate amount of chlorosis is an accompaniment of another condition and where the successful treatment of the other condition is much easier when iron is administered for the chlorosis.

As regards the course and treatment of the disease, it must be noted that relapses are frequent and that it is difficult to bring about a complete cure, many cases running on for months or years, suffering more or less from the symptoms of chlorosis.

Whether these cases are allied to pernicious anæmia or not we do not know, but we do know that we have here a disease which is chronic in

its course, severe in its symptoms, and difficult of treatment, and that we need more studies both about its pathology and its treatment.

Bibliography.

1. *Virchow's Archiv*, Bd. lxxxiv.
2. *Hayem, G.* Recherches sur l'anatomie normal et pathologique du sang. Paris, 1878.
3. *Gräber, C.* Zur klinischen Diagnostik der Chlorose. Therapeut. Monatshefte, October, 1887.
4. *Barbacci, O.* Bestimmung des Hæmoglobin in der Chlorose mit dem Fleischlchen Hæmometer. Centralblatt für med. Wissenschaft., Berlin, 1887.
5. *Henry, F. P.* Anæmia. Philadelphia, 1887.
6. *Jaccoud.* La Semaine Médicale, vol. viii. p. 305, 1888.
7. *Oppenheimer, O.* Ueber die praktische Bedeutung der Blutuntersuchung mittels Blutkörperschenzähler und Hæmoglobinometer. Deutsch. med. Woch., October 17 and 24, 1889.
8. *Duncan, J.* Sitzungsbericht der K. Acad. Wissensch Wien, Bd. lv. Ref. Centralbl. f. d. med. Wiss., 1867, p. 651.
9. *Quincke, H.* Virchow's Archiv, Bd. liv. S. 537.
10. *Flint, A.* Practice of Medicine, Philadelphia, 5th ed., p. 378.
11. *Laache, S.* Die Anämie, Christiania. rev. Deutsch. med. Woch., xi.
12. *Baxter and Willcocks.* Lancet, March 20, 1880.
13. *Coupland.* Quoted by Henry (5), p. 51.
14. *Jaksch.* Klinische Diagnostik. Wien and Leipzig, 1887.
15. *Hartshorne, H.* Reynolds's System of Medicine, vol. i. p. 468.
16. *Weiss.* Prag. med. Wochenschrift, xiii. p. 21.
17. *Gowers, W. R.* Practitioner, July, 1878. *a.* Brit. Med. Journ., May 21, 1881.
18. *Osler.* Pepper's System of Medicine, vol. iii. p. 895.
19. *Immerman.* Ziemssen's Encyclopædia, v. xvi.
20. *Sörensen.* Thesis Copenhagen, 1876. Reviewed in Revue des Sciences Médicales, v. xi. p. 75.
21. *Vierordt.* Quoted by Jaksch (14).
22. *Virchow.* Quoted by Niemeyer. Specielle Pathologie und Therapie, xi. edition. Vol. ii. p. 919.
23. *Prudden.* A Manual of Practical Normal Histology, p. 80. New York.
24. *Foster.* A Text-book of Physiology, p. 14, 3d Eng. ed.
25. *Clark, Sir Andrew.* Lancet, January 19, 1887.
26. *Duclos.* De l'origine intestinale de la chlorose. Revue générale de clinique et de thérap. No. xxxvii. Paris, 1887. *a.* Review in Lancet, November 5, 1887.
27. *LeClerc.* De l'existence frequente de la Fièvre chez le chlorotiques. Paris, 1885.
28. *Schücking, Adrian.* Das Wesen der Bleichsucht. Pyemont, 1888.
29. *Jacoby, Carl.* Ueber sechs fälle von schwere Chlorose. Berlin, 1887.
30. *Gibson.* Lancet, September 22, 1877.
31. *Stark, T.* Archiv. der Heilkunde, 1863.
32. *Duckworth, Sir Dyce.* Brit. Med. Journ., March 12, 1887.
33. *Irvine.* Brit. Med. Journ., June 16, 1877.
34. *Forchheimer.* Medical News, October 19, 1889.
35. *Rendu.* Gaz hebdom. de Méd. et de Chir., No. xvi.
36. *Hanot and Mathieu.* Archiv. gén. de Méd., December, 1876. Ref. Virchow and Hirsch's Jahresbericht, 1876.
37. *Jandot.* Paris Thès., 1877.
38. *Tuckwell.* St Barthol. Hosp. Reports, x. p. 23.
39. *Blondel.* Gaz. des Hôp., No. 46.
40. *Zunder.* Virchow's Archiv, Bd. 84, S. 177.
41. *Schulz and Stübing.* Deutsche med. Woch., vol. xiii.
42. *Willcocks.* Brit. Med. Journ., November 13, 1886.
43. *Molliere.* Lyon médicale, No. xxi.

POINTS IN THE TREATMENT OF CEREBRAL MENINGITIS.

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In writing on the treatment of cerebral meningitis it is necessary to recognize the various forms.

Roughly speaking, the cases of cerebral meningitis may be divided into tuberculous and non-tuberculous; while the non-tuberculous, again, include many forms. These are for the most part:

1. Epidemic cerebro-spinal meningitis.
2. Syphilitic.
3. Traumatic.
4. A form due to a peculiar variety of sunstroke.
5. That brought on by overwork of brain.
6. A purely idiopathic form, that may or may not be associated with a rheumatic, and, more rarely, a gouty diathesis.
7. The meningitis that sometimes accompanies a lethal form of delirium tremens.
8. That which is the sequence of purulent disease of the middle ear, or of the nasal bones.
9. A form associated with diseased kidneys.
10. One seen in connection with diseased cerebral arteries, and probably dependent, like sclerosis, on imperfect circulation.
11. Meningitis the direct result of the progress of intra-cerebral or intra-cranial tumors, or cerebral abscess.
12. A form possibly due to metastasis, as in erysipelas; but as cerebral meningitis is sometimes found in various forms of blood-poisoning, it is quite likely that in erysipelas it is due rather to the presence of micrococci than to metastasis; the more especially as cerebral meningitis is sometimes a sequence of typhoid, scarlatina, etc.

The tuberculous cases call for little remark. Any treatment that can be attempted must be early. Where strabismus occurs the time for treatment is, as a general rule, passed; although, under counter-irritation there may be temporary recovery of consciousness after coma of three days' standing. Watching the earliest symptoms is of as much importance in tuberculous as in non-tuberculous cases; especially as overwork of brain seems to be so frequently the exciting cause in both. On the least deviation from nerve health the brain should be rested, and cod-liver oil, iodoform, or per-iodic acid should be given. It is not always easy to determine the presence of tubercle in the early stages of meningitis. Either the lungs, or the bronchial glands, the glands of the intestine, or the peritoneum, are usually affected; but if the growth of

miliary tubercle is tolerably symmetrical in both lungs, its detection is not easy. Many practitioners have seen cases supposed to be of tuberculous meningitis recover, and the not rare instances of chronic meningitis, with distended ventricles, with the views of some neurologists that certain cases of insanity have been caused by a meningitis partially recovered from, show that when the amount of tubercle is small, and there are no physical signs of general tuberculosis, partial recovery from the original disease is not impossible.

It is very doubtful whether in tuberculous meningitis counter-irritation is of any use. In other forms the position of the inflamed region may render this kind of remedy more potent. But, in tuberculous meningitis the force of the morbid process falls mainly on the membranes at the base of the brain and on the ependyma of the ventricles. It is secondary to the presence and increase of tuberculous bacilli in the tunica adventitia of the smaller arteries and arterioles, though the systemic condition that determines the possibility of this increase goes much further back. This increase of bacilli seems wholly untouched by counter-irritation, and the inflammatory products are scarcely affected by this treatment. Neither venesection, nor leeches, nor cold affusion, nor iodide of potassium, bear the test of experience. But inunction with iodoform ointment is sometimes useful. One point, however, may be noted. The growth of the tuberculous, as of many other bacilli, seems to have the early effect of inducing pyrexia, possibly by paralyzing the inhibitory heat centres, by the absorption of the poisonous chemical products of their growth. The pyrexia, however induced, is favorable to the increase of these organisms. Reduction of temperature under such conditions—not an easy process—is remedial; and various antipyretics, antipyrine by preference, may be used. This drug is best given with digitalis, in the hope of counteracting the depressing effect on the cardiac nerves, caused by the spread of inflammation round the medulla oblongata, or within the fourth ventricle.

It should be remembered, also, that meningitis occurs in tuberculous subjects in which microscopic investigation fails to detect tubercle about the cerebral vessels. Differing from tuberculous meningitis in degree rather than in nature, this form of inflammation is doubtless due to the same organisms, but in number so small that they cannot be readily detected. Sometimes, it is true, death ensues, as several autopsies in the practice of the writer have shown; but the prospects of a treatment, antipyretic, anti-tuberculous, and supporting, are greater, because the arterioles are in this stage not ruined.

It is in the experience of all practitioners that the pain in the occiput and neck, and the retraction of the head, may be met with in forms of cerebro-spinal meningitis, associated with tubercle, or with syphilis, and where there is no epidemic condition present.

The epidemic form is rare in this part—the southwest of England—but in 1875 Dr. Cole, of Bath, brought before the local profession an excellent account of a batch of cases that had occurred in his practice in that city, at a time when a small number of such cases had also been observed in Bristol. At the same time similar cases were met with in neighboring villages, and after death the chief anatomical lesion was lymph on the cerebro-spinal membranes.

Two of such cases were as follows. They occurred in a village in which ten other children were affected, in some of which *post-mortem* appearances were noted:

Case I.—Girl, aged nineteen. Slight vomiting for a fortnight. She seemed to get well, but was found on the floor, slightly convulsed in the face, and insensible. Never regained consciousness. Eyes sometimes open, sometimes shut. Pupils regular, and not inactive. No strabismus. Right arm contracted, but it could be straightened. Restless movements of left arm. Next day no paralysis or contraction of either arm. Complete paraplegia. Urine passed unconsciously, very albuminous. Bowels very inactive. Respiration 30, sighing. No facial paralysis. Swallows well. Some retraction of head. No herpes. Coma increased. Temperature before death, 106°.

Case II.—Girl, aged three. No family history of tubercle. Ailing ten days. Convulsions three days ago. Headache. Some retraction of head. Semi-coma. Convergent strabismus of right eye. Choked disks and distended veins of both retinæ. No contraction or paralysis of limbs. A little vomiting at times. Pulse regular. Temperature never above 102°. Died fourteen days after the first symptoms, with much convulsions and coma; the strabismus having disappeared.

In this form of meningitis the micrococcus does not seem to produce such poisonous chemical products as the tuberculous bacillus. Treatment, therefore, is more hopeful, and may be directed to the parts found in fatal cases to be specially attacked. Spinal ice-bags, mercury, iodide of potassium, with some counter-irritation, not of the most exhausting form, may be used. The frequent occurrence of glycosuria, perhaps also of albuminuria, points to irritation of the regions of the medulla oblongata. These spots are so close to the vagus nucleus that it is impossible in practice to neglect the origin of this nerve, whatever treatment is employed for combating the localized meningeal inflammation; the cardiac tone, and the general strength must be supported by digitalis and quinine. The occipital headache is often so severe that sedatives are called for, and morphine and other salts of opium are well borne. May they not exercise a tonic influence on the centres in the medulla oblongata, as they seem to do in many cases of diabetes?

The meningeal thickening sometimes seen in cases of delirium tremens, and due to the toxic effects of alcohol—the form that may be associated with chronic nephritis—the variety that seems to depend on imperfect circulation through atheromatous and rigid arteries, calls for little

remark as to treament. The original diseases demand, as far as may be, more attention than the meningeal lesion.

Inflammation of the middle ear is scmetimes a cause of meningitis; but meningitis is often secondary rather to the cerebral abscess consequent on the ear disease. If meningitis be the only result of the middle ear lesion, without pyæmic deposits of any kind in the brain itself, the case is not hopeless, especially if the mastoid cells are unaffected. If the drum of the ear has not been ruptured naturally in the course of the disease it may be punctured, and then injections of a disinfectant nature are useful. Borax, boric acid, periodate solution of the strength of one part in 500 in water, or a very dilute carbolic acid solution, may be injected. Counter-irritation over the mastoid cells may be successful. In a case lately under observation leeches over the mastoid cells, with large doses of iodide of potassium, were followed by recovery, where the symptoms were agonizing pain, restless delirium, and coma. Surgical interference is not hopeful in this form, however much may be said for trephining over mastoid cells in cases of pyæmia from middle-ear suppuration.

In those rare cases of sunstroke where the vertex of the head is affected, and where, instead of the intense pyrexia, the loss of consciousness and the collapse of the ordinary form, the patients suffer from a very temporary loss of consciousness, a dazed condition of mind, and an ataxic gait resembling that of drunkards, besides the cold affusion, and the hypodermic injection of quinine, so useful in ordinary sunstroke, a modified counter-irritation over the vertex of the head, and a course of iodide of potassium with ammonia and digitalis, will be found useful.

In the violent delirium of some cases of erysipelas, due at least partially to meningeal inflammation, the best results are obtained by profusely painting the whole scalp with linimentum iodi. Whether this acts simply as a counter-irritant, or also, and mainly, from its antiseptic powers, is open to question. The last seems most probable. Such cases will respond to the remedy, even when the temperature has reached 108° Fahr.

There remain, then, syphilitic meningitis, traumatic, and the so-called idiopathic form, due to rheumatism, over-work, or other causes.

When the cerebro-spinal meningitis is not epidemic nor endemic in a district, and where there is good reason to disbelieve in the presence of tubercle, retraction of the head may probably be due to meningitis of a syphilitic nature. It is a form, also, very frequently marked by affection of the nerves of the eyelid, the eyeball, and the face. Though we meet with this form affecting small regions of the convex surface, and generally then associated with severe pain, even where the cranial bones are healthy, the force of the lesion is usually seen at the base of the brain. Counter-irritation is of little use. A course of biniodide of mer-

cury may remedy most of the phenomena, if the case comes early unde treatment. But in this, as in all forms of meningitis, early treatmen is of the utmost importance before the effused products indurate and contract and compress nerves more effectually. In one case, with ptosis of left upper eyelid that had existed for many years, convergent strabismus of both eyes manifested itself, with complete paralysis of the left side of the face, and with some implication of the fifth nerve also. A course of biniodide of mercury was followed by large doses of iodide of potassium; but no improvement took place until iodide of sodium was substituted for the potassium salt, when the affection of the eyeballs, the facial paralysis, and the partial anæsthesia passed away, leaving the chronic ptosis untouched. It may be presumed that the sodium iodide is more destructive to the microbe of syphilis than the potassium iodide. Hand in hand with these remedies careful nutritious feeding is of great importance in syphilitic meningitis. In all forms of this disease, where death does not occur from hyperpyrexia, or from direct pressure on or irritation of the medulla oblongata, there is great danger from imperfect nutrition of the brain itself. Thrombosis of the pia mater vessels is common in all forms of meningitis; and so large a portion of the brain, especially of the cortex, derives its nutrition from these vessels, whilst the anastomoses between them and other arteries occur so sparsely, that local softenings are not usually met with. Nutritious diet, that may improve the quality of the blood without necessarily intensifying the action of the heart, and so increasing the risk of small hemorrhages, is an integral part of treatment.

Traumatic meningitis may seem to be more suited to surgical than to medical treatment. Cranial surgery is achieving splendid triumphs in cases of compression from bone, of abscess, and even of intracranial tumor. But a considerable number of cases occur where a fall or a blow causes no fracture, no displacement of bone, but yet is sufficient to bring about meningeal inflammation, sometimes following a small hemorrhage that may act as a foreign body. The meningitis is at first localized, and may give rise to very slight symptoms, but it spreads, and by-and-by slight strabismus will be noticed, or amblyopia or photophobia, or a difficulty in remembering words, or irritability, or some change in the character of the patient, difficulty of attention, etc. Bearing in mind what has been said above as to careful nutrition, there is need in these cases of somewhat drastic treatment. Thorough counter-irritation over the seat of lesion, mercurial aperients, the iodides combined with the bromides, an absolutely vegetative life in a partially darkened room, without any kind of excitement, will give good success. Nor are sedatives to be tabooed in such cases. Not only bromide of potassium, but hyoscyamus, sulphonal, and preëminently paraldehyde, are of use, though the action of sedative drugs is incomparably of

less importance than the sedative effects of a quiet life. It has been said that in traumatic meningitis, if slight, electrical treatment is useful.

The following cases exemplify the great variety of symptoms in this form of meningitis:

CASE III.—Lieutenant N. Fall at polo. Concussion of brain, and probably fracture of external table of frontal bone. Unconsciousness ten days. Memory poor for many months. Intelligence sluggish. Difficulty in concentrating attention. Depression. Tendency to be emotional. In this case probably localized meningitis followed the pouring out of a small hemorrhage.

CASE IV.—Girl, aged six. Seven weeks ago was knocked under a table by another little child. No symptoms for two weeks. Then general malaise. No importance attached to it until a few days ago. Now no photophobia. Headache. Child places hand on the seat of injury above the right ear and forward to the temple. (A year ago had discharge from right ear, of which she got well.) Right pupil slightly the larger. Strabismus, followed by convulsions. Vomiting. Temperature 101°. Semi-coma. Death. No tuberculous family history.

CASE V.—Mr. G., aged thirty-five. Had a bad fall from his horse three months ago. He fell on posterior part of right parietal bone. Bone supposed at the time not to be injured. Unconsciousness two days. Now tenderness at seat of injury, general headache. Irritability. Vertigo. Impaired memory. Confusion on attending to business. Stiffness of upper neck. Insomnia. At a distance of four yards cannot distinguish letters of XL. Jäger's type with left eye, and only just with right. Commencing double optic neuritis. Slight motor deficiency in right arm and hand. Some motor loss and numbness of left leg. Irritable bladder. Great improvement under large doses of iodide of potassium, and the application of linimentum crotonis over the seat of accident.

CASE VI.—H. F., aged fifteen. Has had his ears boxed at school a good deal. Has been failing for some months. Spasm of right facial muscles. Slight paresis of right limb. He will romp sometimes, but is generally inert and heavy. A little later, spasm of orbicularis oris showed itself. Headache. Sight of left eye poor. Some optic neuritis of left eye. Improved under iodide and bromide of potassium, and the application of croton oil over left parietal region.

CASE VII.—T. S., aged fifty. A very subacute case. Three months ago he fell six feet on vertex of the head. Headache ever since, the pain being much increased on taking alcohol in any form. Mist before the eyes. Cured by iodide and bromide of potassium.

CASE VIII.—F. W., twenty-one. Fell on her head fourteen months ago. Constant headache since. No other symptoms. Cured by iodide of potassium, bromide of ammonium, and guarana.

CASE IX.—Miss M., thirty-seven. Fell down stairs a month ago, striking the temples against the wall and the stairs. Headache at first. Sent to bed four days afterward. No rigor. No symptoms, except headache and slight photophobia. Ten days ago temperature went up to 101°, and she began to talk nonsense. Yesterday the evening temperature was 102°. To day more photophobia; is not very sensitive to sounds. Is rather sleepy, but can easily be aroused. Wakes with a little half-hysterical sob. Pupils act, and are equal. Optic disks healthy. No

convulsions. No paralysis. Passes excretions with full consciousness. Looks very neurotic. Reflexes normal. Kidneys, heart, and lungs healthy. Swallows well. Talks, but without sequence. The scalp was shaved and blistered. Unguentum iodoformi over the blistered surface. Hazeline, bark, bromide of sodium given. Gradually coma supervened, and she died in about three weeks from the going up of the temperature. *Post-mortem:* Dense, heavy calvarium, with scarcely any cancellated tissue between the tables. The soft membranes opaque and thickened over convexity. Lymph poured out along the edges of the great longitudinal sulcus. Intense venous engorgement of the whole brain. No pus. No tubercle.

The difficulty here immediately after the fall was enhanced by her being very neurotic, by the fact that she was the child of a very intemperate father, and by her having lately had a disappointment in love.

CASE X.—Miss E. H. Six months ago had a very severe fall on the back of her head, from the effects of which she says she "fainted." To get rid of the headache which supervened she starved herself, took long walks, and played lawn tennis vigorously for three months. Then had atonic obstruction of bowels, and absence of catamenia. Now is physically stronger, but power of thought, attention and memory are almost in abeyance. Fears insanity. Under slight counter-irritation the use of phosphorus and nux vomica, and careful feeding, she gradually recovered.

CASE XI.—Miss L., seventeen. Six months ago had severe blow over the right parietal bone. Was stunned for a few minutes, but afterward felt little effects until six weeks ago. Then paroxysmal pain over the injured region, and this has persisted, off and on, ever since. Now there is no depression or tenderness over the injured part, but some tenderness below to the ear, and internal pain there, running also down the neck. On walking she feels giddy, and sways. No vertigo in bed. Some photophobia. Cannot long attend to reading. Sight of right eye not so good as of left. A little deafness of right ear. Some irregularities of heart, one beat out of five being weak. Temperature normal. Respiration good. She digests fairly, but needs aperient; at times some weakness of external rectus of the right eye. The opinion given was that at the time of the blow a small hemorrhage occurred—that the presence of the small clot set up subacute meningitis, which has passed down the right side of the brain to the base, affecting the auditory nerve as it enters the petrous bone, the third nerve and the right optic nerve.

Under vigorous use of croton oil over the seat of injury and the chief seat of pain, with the exhibition of iodide of potassium, digitalis, and ammonia, careful feeding, partial darkness, and complete absence of all excitement, recovery was complete.

In so-called idiopathic meningitis treatment must depend upon the recognition of the probable cause. Rheumatism certainly is one, gout more rarely. The most frequent cause is overwork. In one case observed, with a temperature of 107°, in a woman aged thirty, no other lesions than acute meningitis of the convexity were found after death, the cause of the illness being rheumatism. In another case, in which the patient, a lad of eighteen, died from rupture of a meningeal artery, there

were found the remains of a meningitis from which he had suffered a year before as a sequence of rheumatism and had recovered. But overwork of brain, demanding an abnormal supply of blood within the cranium, is prolific in mischief. Case after case in a physician's notebook shows the truth of this, and the prodromata are so easily mistaken or overlooked.

For instance, G. D., aged five, is old and precocious, even learned for her young age. Eight months ago used to have screaming fits, and was very irritable. This was treated at home by punishment. The irritability has returned this winter, with tendency to trip in walking or running, with numbness of tongue and of the limbs of the left side, with at least one attack of petit mal, and now with constant headache, and a temperature of 102°. No convulsion, no vomiting, no strabismus. Under sharp treatment with iodide of potassium and aconite, with an entire change of habits, further evil was warded off. In another case, that proved fatal, a girl, aged sixteen, had been working hard for a prize. For some weeks she had been frequently losing the memory of words for a time. Even a symptom like this had been neglected. She died after an acutè illness of a fortnight, retraction of the head being an early symptom, followed by headache and gradual coma.

Such cases are numerous enough, and exemplify the importance of watching any deviation from the normal in the nervous system. The convexity, too, in these cases is usually the part chiefly attacked. Bleeding is pretty universally condemned; indeed, experience decided against its being of any benefit in meningitis before it was given up for a vast number of morbid states. But leeches over the scalp certainly give ease to the patient, and probably render the cerebral circulation less difficult. Ice to the head and cold affusion have often been recommended. No doubt the application of cold to the scalp is grateful to the patient, and on that ground is beneficial, but it is nearly certain that it does not reduce the temperature at all. It acts wholly on the fibrils of the fifth nerve outside the skull (therefore reflexly on the branches inside the skull). On the other hand, considerable advantage is derived from the free use of croton oil to parts of the convex surface of the cranium, or by painting the whole scalp with linimentum iodi, or even by blisters on the scalp, behind the ears, or on the nape of the neck, although these latter applications often seem too mild. Long mustard poultices down the whole length of the spine often give relief to the headache of meningitis. Partly as a counter-irritant, partly as a means of preventing or removing effusion into the ventricles, purgatives are useful.

In this, as in other forms of meningitis, it is necessary to reduce pyrexia: even if the temperature of the body is not hyperpyretic, antipyrine, antifebrin, aconite, even quinine, combined with hydrobromic acid, may do

this, and in most cases these remedies should be combined with cardiac tonics. Jaborandi, or the hypodermic use of pilocarpine, may be useful, maintaining the circulation at the same time. The iodides are in this form chiefly beneficial at a later stage, with the view of getting rid of effused products. A nutritious diet of milky and farinaceous food is all-important, without stimulants in the great majority of cases, and especially in young subjects. If life is preserved the after-treatment, though not stimulating, should be supporting, and the whole surroundings of the patient should be calculated to prevent brain-waste and to promote repair.

EAR PRESENTATION.

By H. J. Garrigues, M.D.,

Professor of Obstetrics in the New York Post-Graduate Medical School and Hospital; Consulting Obstetrician to the New York Infant Asylum; Gynecologist to St. Mark's Hospital, etc.

There is yet, after nearly three-quarters of a century, much diversity of opinion among obstetricians in regard to Naegele's obliquity. Some, such as Leishman and Duncan, deny its existence altogether; others, *e. g.*, Barnes, think it governs the whole passage of the head through the genital canal. However this may be in normal cases, so much is sure, that in abnormal cases we may have the head bent so much toward one of the shoulders above the brim of the pelvis that the ear presents. The head may either be approached to the anterior or the posterior shoulder. In the first case the sagittal suture is found running transversely from side to side, near, close up to or above the anterior pelvic wall; the posterior parietal bone and the posterior ear present themselves at the brim of the pelvis. In the second the sagittal suture runs in a similar direction near the promontory of the sacrum, and the anterior parietal bone and ear present themselves.

These presentations are called the *anterior and posterior parietal presentation*, according to the parietal bone that presents itself to the touch; or, since the ear is easily felt, the *anterior and posterior ear presentations*. They are, probably, of rare occurrence. I have never met with a case before the one I am going to report. They are not mentioned in our three modern American treatises on obstetrics, Lusk's, Parvin's, and Gliesan's, nor in such widely used English works as those of Playfair and Leishman. Spiegelberg[1] says they are very rarely found in normal pelves. As a rule the pelvis is narrow, but even with a normal pelvis an anterior ear presentation may be caused by anteversion of the

[1] Lehrbuch der Geburtshülfe, Lahr, 1878, pp. 158–159.

uterus and pendulous abdomen. Under other circumstances the causes that produce ear presentations are unknown.

In most cases the prognosis is favorable, as the head either changes its relations to the body under the influence of labor pains, or is manually replaced by the accoucheur. But if the abnormal attitude continues after the waters have broken the condition is a serious one, as the head cannot pass through the pelvis when so placed. If feasible, podalic version and extraction are indicated; if not, the head must be diminished by means of perforation and evacuation.

The case I met with was the following:

Mrs. B., æt. thirty-one, American, third pregnancy. She stated that her previous labors had been very tedious, but finished by nature's sole efforts. Last menstruation February 1st till 6th, 1889. Labor pains began November 22d, about 11 P. M. First seen on the following day, at 3 A. M. The os admitted the index and formed a transverse oval. Ordered: Antipyrine, gr. x.

At 7.30 A. M. hardly any change was observable, although the cervix was soft. Repeat antipyrine, gr. x.

At 10.30, things being pretty much in the same condition, I made a thorough examination, the patient being on her back, and felt first the left posterior side fontanelle, and to the right side of that (that is to say, going over toward the mother's right side) I felt the left ear. Heart-beat 140 per minute, two inches to the right and below the umbilicus. I turned the patient over into Sims's position, and could then reach the left eye. Neither the sagittal suture nor any of the adjoining fontanelles was within reach. But by pushing the body of the child over to the mother's left side, and by pressing on the head the posterior fontanelle was brought down. After that I kept her lying on the left side in order to retain the presentation obtained.

At 11.30 A. M. the os had the size of a fifty-cent piece. The cervix was soft, the bag unbroken, the presentation vertex in left occipito-anterior position (V. L. O. A.). Neither the large fontanelle nor the eye nor the ear were within reach. Labor pains weak. The patient slept a good deal.

At 4.15 P. M. the waters broke spontaneously, and almost immediately after the child was expelled in good condition. It was a medium-sized boy, weighing I should say between seven and eight pounds. About ten minutes later the placenta was expressed by Credé's method.

The lying-in period was normal. On the 30th, the uterus being way down in the pelvis, she was allowed to sit up.

Anybody who has a fœtal head and pelvis at his disposition can easily reproduce the presentation by placing the head above the brim, the posterior fontanelle touching the left ilio-pectineal eminence; the sagittal and frontal sutures parallel to and nearly on a level with the ilio-pectineal line of the pubic bones; the left parietal and the left frontal bones turned down toward the cavity of the pelvis. He will then likewise realize how it helped to push the body from the right side, where the heart was heard, over into the left, and let her lie on the left side, so as

to get the weight of the uterus with the child on this side, and at the same time push the posterior side fontanelle with the ear over to the mother's right, and backward. By so doing the upper posterior fontanelle is brought downward. By a rotation round the occipito-frontal diameter the position changed to a normal left occipito-anterior.

I would on this occasion call attention to the posterior side fontanelle, which is unduly neglected in the text-books. This fontanelle is by no means rarely felt, and gives exactly the same sensation to the examining finger as the upper posterior fontanelle, three sutures meeting to form either. At the superior posterior fontanelle we have the sagittal and the two branches of the lambdoid; at the posterior side fontanelle it is the lambdoid joining the masto-parietal and the masto-occipital. But they may be distinguished by the adjoining bone. Following the sagittal suture we meet the entirely smooth, evenly convex upper end of the occipital bone, while when we follow the lambdoid we meet the mastoid portion of the temporal bone, which presents rugosities formed by bony ridges and protuberances.

It is particularly desirable that the accoucheur should know the existence of ear presentations on account of the possibility of the examining finger coming in contact with an eye, as in my case—a circumstance that may give rise to irreparable injury if that delicate organ is not treated with due care.

TUMOR OF THE CORPUS CALLOSUM.

By Henry J. Berkley, M.D.,
of Baltimore.

Tumors of the great inter-hemispheric commissure are so rare as scarcely to find a place in the standard literature of cerebral disease, Gowers[1] and Seeligmüller[2] being the only recent writers who have touched upon the subject, and then only passingly. There are, however, scattered through different journals twelve cases, recorded by Mills[3] (1), Glaeser[4] (3), Macguire[5] (1), Bristowe[6] (4), and Bruns[7] (3); in which this part of the brain was involved. The third case of Bruns is so complicated by other tumors, as hardly to be included among the callosal ones;

[1] Gowers: Diseases of the Nervous System, vol. ii., 1888.
[2] Seeligmüller: Gehirn u. Rückenmarks Krankh., 1887.
[3] Mills: Philadelphia Medical Times, 1879.
[4] Glaeser: Berliner klin. Wochenschrift, 1883.
[5] Macguire: American Journal Neurology and Psychology, 1884.
[6] Bristowe: Brain, 1884.
[7] Bruns: Berliner klin. Wochenschrift, 1886.

Mills's is simply an extension from a tumor of the frontal lobe; indeed, all of them are so involved by growths into other parts as to be almost useless in formulating any especial symptom for diagnosis.

Seeligmüller (*l. c.*) gives in accordance with the general teaching for local diagnosis in the brain, as indications, "paucity of tumor symptoms, especially optic neuritis; prominent mental symptoms, bilateral hemiparesis, no paralysis of the cranial nerves." Gowers (*l. c.*): "Mental dulness and weakness in the limbs," qualifying the statement by adding, "that these symptoms are probably due to pressure, or an extension into the cerebral hemispheres; and we do not yet know of any symptoms that are the result of damage to the callosal fibres."

An analysis of the twelve cases gives headache in six, vomiting in one, epileptiform attacks in one, optic neuritis in six (of which two are very uncertain—Glaeser, Bruns); disturbance of intelligence, principally in the form of dementia, in all cases, hemi-paresis in six, para-paresis in three, muscular stiffness in two.

We have clearly in this summary no pathognomonic symptom that can actually refer to the corpus; headache and mental dulness are the most frequent, and no inference could possibly be drawn from them; optic neuritis is rather infrequent, certainly existing in thirty-three per cent., and the others occur much more commonly in disease of other localities.

The following observation was made a number of years ago in the wards of the then visiting physician to Bay View Asylum, Dr. Reynolds; the post-mortem was performed by the writer.

Case I.—John E., æt. forty-five, was admitted to the hospital department November 4, 1882, with anasarca and ascites of hepatic causation, diagnosed malarial, as the patient had been subject to ague. For several years previous he had been of unsound mind. No family history was obtainable; he only knew that his parents were generally healthy. His insanity had the form of monomania, and was solely confined to the delusions that he was a great inventor, the discoverer of a perpetual motion machine, and other impossible mechanical contrivances. He also imagined that he had a wonderful knowledge of drugs, and would frequently ask to be given "inward tinctures" of unknown composition, "certain to cure his complaint," and to have his entire body "swathed in slippery-elm poultices," of which bark he carried an immense bundle when he arrived at the asylum. He was not at all depressed when his suggestions were not approved of, and would accept, without hesitation, some simple when given to humor him and replace his "inward tinctures."

E. was a man of rather large build, frame well developed, no noticeable peculiarity in the skull formation. The face had an intelligent expression, he spoke clearly, with rather a choice selection of words, and had evidently received some education. The eyes had a tendency to wander around the room when any one was addressing him. He was extremely loquacious, chatting from morning until evening about his inventions,

tinctures, and the like, but could carry on a connected conversation. Memory was quite good, remembered objects and sentences from one day to another without difficulty. Comprehension was not wanting. Hallucinations or illusions were never observed.

There was no headache or vomiting, the eyesight was perfect, there was no incoördination, the movements of the facial, lingual, and muscles of the extremities and trunk were natural, there was no sensory disturbance, the sphincters were under control, the knee reflexes were normal. There were no signs to indicate cerebral disease of any kind except of the mental functions. According to his own statements, he had never drank, nor had syphilis, nor were there any signs of that disease. Death occurred November 26th from pulmonary œdema.

Section twenty-two hours after death. Cadaveric rigidity well marked. Body little emaciated. Skull rather thin but with diploë well developed. Upon the inner surface of the occipital bone, the natural slight eminences in front of the anterior condyloid foraminæ were considerably enlarged; otherwise the skull was symmetrical. The dura mater was normal. The arachnoid space contained no fluid. The pia mater was injected, distended capillaries being seen everywhere in it. The membrane was slightly thickened, and did not peel off readily, but did not drag the cortical matter away with it. Both hemispheres were about equal in size. The frontal lobes, from their middle forward, were exceedingly small, and distinctly depressed below the level of the posterior portions, as could readily be seen on taking the brain in the hand and looking from before backward.

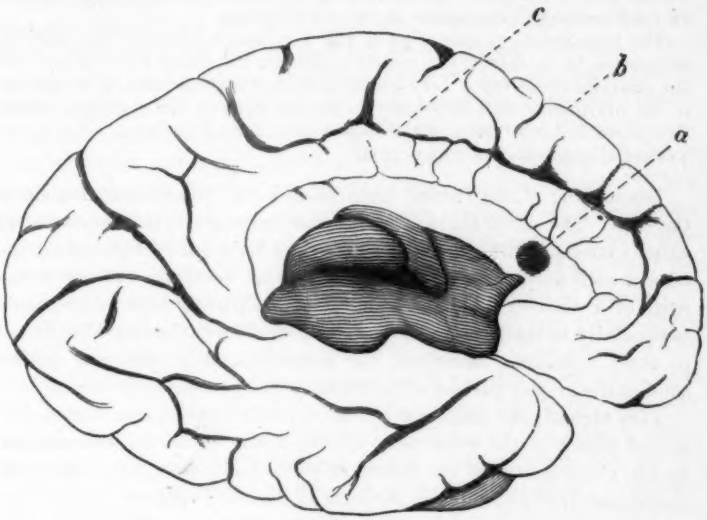
The two hemispheres were separated by a longitudinal incision through the centre of the corpus callosum, when, on examining its cut surfaces, a small, soft tumor of the size of a filbert, grayish in color, without a sharp line of demarcation between it and the sound fibres, was found just posterior to the genu, directly in the middle of the exposed portion of the body, with a thin layer of white fibres above and below, and a considerable body of them in front (Fig., *a*). Cuts made laterally through the tumor showed gray rami of apparently sclerotic fibres, extending into the centrum ovale, toward the tips of the lobes. The basal vessels were sound.

The hemispheres were hardened in a solution of potassium bichromate for further examination; the bulb and a portion of the cerebellum in Müller's fluid, the latter organs being apparently sound.

In the thorax, the heart was normal, valves perfect, muscular walls well nourished. The lungs were throughout œdematous; at the bases some hypostatic pneumonia. In the abdominal cavity the liver was a little enlarged, hard, with thickened capsule. The spleen was also enlarged. Other organs normal.

After hardening the brain for a sufficient time to allow it to become quite firm, the convolutions were studied and sections made horizontally from above downward. The convolutions were richly developed and very complex. On the left side, in the frontal lobe, there was a complete reduplication of the second frontal, making four convolutions. All resolved into an intricate plexus, perhaps more apparent on account of the atrophy. The sulci were wide. An exceedingly deep fissure broke the ascending frontal convolution opposite the superior frontal sulcus, separating the paracentral lobule. The fissures of Sylvius and Rolando pursued their usual course. The convolutions of the parietal, occipital,

and temporal lobes though intricate conformed to the regular type. On the internal aspect of the hemisphere the only irregularities were a slight bit of cortical matter bridging the calloso-marginal fissure in its posterior third (Fig., *c*), and a frequent transverse fissuring of the gyrus fornicatus.



Left hemisphere.

a. Tumor.
b. Line of demarcation or depression.
c. Pli de passage.

On the right side the second frontal was again completely reduplicated, but the anterior part of the frontal convolutions was more withered, the gyri being exceedingly thin, sulci wide, and the line of depression more pronounced. On neither side were the under surfaces of the lobes perceptibly involved, the convolutions being normal in size. On the mesial aspect only the superior frontals were in part involved.

The ascending frontal was interrupted opposite the first and third longitudinal convolutions by two deep furrows, extending into the Rolandic fissure, the lower being the deeper. The Sylvian and Rolandic fissures were like those of the left hemisphere. The inter-parietal sulcus was bridged by a broad pli de passage a little in front of the parieto-occipital fissure which united the two lobes. The remainder of the convolutions conformed to the left side. On the internal surface an exceedingly broad and broken frontal convolution, fused completely in its middle and posterior thirds with the gyrus fornicatus, which was itself conjoined with the convolutions of the lobus quadratus. Posterior to the occipito-parietal fissure the topography returned to the usual type.

The calloso-marginal fissure commenced beneath the anterior extremity of the corpus callosum, ran regularly a short distance until interrupted

by the uniting of the gyri, after which but indistinct traces of its course could be seen. The paracentral lobule, instead of being furrowed transversely, was divided by two deep longitudinal sulci.

Section of the brain gave normally formed ventricles, ganglia, and internal capsules. Fornix, corpora albicantia, anterior commissure, and velum well developed. The cortex in the wasted areas averaged about two millimetres at the apices of the convolutions.

The histological examination of the cerebellum showed the nervous structures to be intact, the vessels somewhat distended with blood. In the medulla there was a very coarse granular degeneration of a number of the multipolar cells in the nuclei on the floor of the ventricle, better developed in both nuclei of the hypoglossus than elsewhere. The upper part of the spinal cord was normal.

The wasting of the frontal lobes formed the inexplicable feature of the case. The nerve fibres of the corpus callosum, being connected at either extremity with ganglion cells, are not supposed to degenerate; the basal vessels were sound—even if they had not been, it is difficult to conceive of a vascular lesion affecting so symmetrically both hemispheres, particularly as there are no known vessels that are exclusively distributed to these localities. Moreover, the measurements of the gray matter showed the greater portion of the atrophy to be in the white tracts.

Very recently the enigma received a partial explanation through a second tumor of the same part, kindly given to me for examination by Dr. Councilman, of the Johns Hopkins University, but which was, unfortunately, too diffuse for purposes of topical diagnosis.

Case II.—This tumor, a gliosarcoma, occupied the whole central region of the corpus callosum, a portion of the left anterior lobe not extending to the cortex, and both optic thalami in part. But the right lobe was free, to a certain extent, and from this numerous sections were made; some parallel with, and including the corpus, some so cut as to give different views of the callosal, projection, and arciform fibres, and stained with Weigert's hematoxylin. The left of these sections contained almost entirely tumor tissue, with a few scattered nerve fibres, but as the slide was passed to the right more and more medullated fibres came to view, until the sub-cortical layers were free in places from the sarcomatous tissue. The fibres of the projection system gave little evidence of degeneration, though occasionally a single fibre might be seen changed, the arciform fibres being beyond the tumor's limit had none, the callosal ones, on the other hand, presented quite a variety of alterations; in some sections large numbers of them could be seen degenerated, with here and there more perfect bundles lying in their midst; where the tumor encroached upon them there were drops of myeline and débris, marking a somewhat recent process, but no granular corpuscles. Great difficulty was experienced in tracing these callosal fibres up to the gray tissues, from their dipping under a bloodvessel, or being interrupted by a spur of the sarcoma-substance, but occasionally it was possible to follow them almost to the lower layers of the brain rind, where they were finally lost.

This degeneration of the commissural fibres accounts for at least a portion of the atrophy in the first case, possibly had the growth been slower, and of longer duration (it was about four months from the date of the traumatism, which apparently caused it, until death), nearly all of the nerve tubes would have followed their fellows.

The duration of the morbid growth in Case I. is a question with an uncertain answer. A friend of the patient, whom I questioned, told me that his mental state had existed for several years. The nature of a glioma is to be very slowly progressive, also the atrophy of the frontal lobes in their anterior portions must have taken a considerable time to advance to the state they were in when death supervened. Can we connect the tumor and wasting with the monomania, which would be against the theories of the most recent writers on the corpus callosum?[1] It is a very open question, taking into consideration the imperfect development of the hemispheres; psychical disturbance is, nevertheless, the most constant result of tumors of the forepart of the brain, and if lesions of the organ have any symptoms, it should be the most constant of them.

From an anatomical, as well as functional view, the case is most interesting and instructive. It accords with Meynert's,[2] as well as Obersteiner's[3] idea: that the callosal system binds together identical portions of opposite hemispheres, both frontal halves being nearly symmetrically atrophied; but completely negatives Hamilton's,[4] of the callosal fibres forming a large part of the internal capsule, and I think proves, as well as a single case can, that the function of the fibres is simply to connect the hemispheres, or, rather, parts of them. Cases, it is true, exist where the corpus has been completely absent without mental peculiarity,[5] but they are very rare, and only prove that the hemispheres may coördinate without its assistance, probably through the medium of the enlarged anterior commissure, as in the cited case, which has the same function (Obersteiner), and has been absent in a number of cases where idiocy was complete.

It would seem from the lack of atrophic changes in the inner and under parts of the frontal lobes, that either the callosal fibres had no connection with those parts, or that they were conjoined by the fibres of the knee and beyond, the latter view being more probably correct.

[1] Vide Erb, Virchow's Arch., Bd., 97, S. 329; and Kaufmann, Arch. f. Psych. und Nervenkrankh., xix., 1888.

[2] Meynert: Klinik der Erkrankungen des Vorderhirns, p. 41, Wien, 1884.

[3] Obersteiner: Nervöse Centralorgane, Leipsig, 1888.

[4] Hamilton: Brain, 1885.

[5] Vide Eichler: Arch. f. Psych., vol. viii., 1878.

A STUDY OF METASTATIC CARCINOMA OF THE STOMACH.

REPORT OF A CASE OF PRIMARY CARCINOMA OF THE TESTICLE; SECONDARY INVOLVEMENT OF THE VENA CAVA INFERIOR; METASTASES IN THE LUNGS, STOMACH, AND FALX CEREBRI.

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At a time when rapidly increasing knowledge of the etiology of disease is daily disclosing new possibilities of preventive medicine, no one can fail to hope for some new light upon the causation of malignant tumors. One after another pathologists have essayed the solution of this most hidden problem, and their repeated failures serve only to emphasize the paucity of material from which to educe a satisfactory theory. Generalization without facts is impossible. Facts, then, are what are needed to-day, and facts in medicine are carefully reported cases. It is in the hope that some suggestion may be contained in it that the following case is presented.

I desire here to express my indebtedness to Drs. Robert A. Murray and Farquhar Curtis, surgeons in charge of the case, for the use of the clinical history, and to Dr. John S. Thacher, pathologist to St. Luke's Hospital, for the account of the autopsy and the specimens.

Charles H., a German, aged thirty-nine, single, a laborer by occupation, presented himself at St. Luke's Hospital on July 16, 1889, complaining of a painful tumor of the right testicle. Twenty years before he had ruptured himself while carrying a heavy weight, and had since that time worn a truss. During the previous winter he had been obliged to provide himself with a new truss, which fitted badly, causing him much discomfort and considerable irritation of the parts. This was worn for several months until he could endure it no longer. About the middle of April he noticed that the right testicle was tender, harder, and somewhat larger than before, and about two months before admission to the hospital he noticed a hard mass extending upward and outward from the testicle, to which it appeared to be attached. He stated that this tumor had been separable from the hernial tumor, which was always easily reducible. Incomplete descent of the right testicle existed during childhood, the organ lying in the inguinal canal. This condition persisted until he began to wear the truss, by which the testicle had been prevented from retracting.

Patient said that he had been very healthy, that he was only a moderate drinker, and had never contracted either gonorrhœa or syphilis. No evidence of renal, pulmonary, or cardiac disease. Family history negative.

Examination disclosed a hard, nodular, tender mass in the right scrotal sac about four inches long and one and one-half inch in diam-

eter, running upward to the inguinal canal. External to and above this mass was the sac of a reducible inguinal hernia.

On July 18th Dr. Murray operated, amputating the diseased testicle and sewing up the sac for the radical cure of the hernia. Recovery after the operation was rapid, and on August 27th the patient was discharged, apparently well.

Examination of the amputated testicle by Dr. Thacher showed it to be enlarged ($1\frac{3}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$ inches), rather firm in consistence, and of a mottled appearance on section. The epididymis was also enlarged to a diameter of $\frac{1}{2}$ of an inch, and on section presented a white surface dotted by several minute soft dark spots. Microscopic examination of the testicular tumor showed it to consist of a connective tissue stroma containing an abundance of irregularly shaped alveoli filled with cells, which are described as round or polyhedral in shape (except those at the periphery of the alveoli, many of which were cylindrical), and as completely filling the sharply outlined alveoli. The diagnosis *carcinoma testis* was returned.

For two months after leaving the hospital patient felt very well and was able to do light work, the hernia not returning. Toward the end of October, however, he began to experience gradually increasing pain in the right inguinal region, and soon a tender tumor was appreciable in the same location. Loss of flesh and strength followed, his appetite failed, and he began to be much annoyed by constipation.

On December 13th he applied for readmission to the hospital. The tumor was found to extend upward as far as the level of the anterior superior spinous process of the ilium, and inward to the external border of the rectus abdominis muscle. It was hard, nodular, and tender.

Five days later laparotomy was performed by Dr. Farquhar Curtis. Enlarged lymphatic glands were found along the course of the spermatic cord, and a mass of considerable size lay against the lumbar vertebræ. It was thought inadvisable to attempt the removal of any of the tumor and the abdominal wound was accordingly closed.

On the 22d he complained of pain in the chest and cough, and signs of general bronchitis and consolidation of the lower lobe of the left lung developed, with considerable rise of temperature and blood-streaked sputum. Poultices were applied and ammonium carbonate and whiskey were administered. This condition continued five days, after which the signs of pneumonia disappeared. The bronchitis continued, however, until his death, as did an irregular temperature, ranging up to $103\frac{1}{2}°$ at times. Pain in the region of the tumor now became a distressing symptom, necessitating the free use of morphine. Thus he continued, gradually declining, until January 20, 1890, when, after a chill, signs of consolidation of the middle of the left lung posteriorly made their appearance. From this time he steadily weakened, and died on February 9th.

Autopsy (thirty-six hours after death, by Dr. Thacher, from whose report I quote).—Small frame; muscular development slight; adipose extremely scant. Diaphragm: right, fifth rib; left, fifth rib.

Left lung: Many old adhesions. Very numerous nodules scattered through the lung varying in size up to one and one-half inch in diameter, most of them white with reddish spots, and mostly well circumscribed, but in the lower part of the lower lobe there is much diffuse infiltration of white tissue. The majority of the nodules are of enceph-

aloid consistence, but some are a little firmer and a few are broken down, and contain a thick, reddish fluid. In the upper lobe there is some thick cicatricial tissue and a few patches of broncho-pneumonia are visible, besides a few clusters of small tubercles and some small cavities or dilated bronchi filled with pus. Weight, 2 pounds 5 ounces.

Right lung: Many old adhesions; very many nodules similar to those in the left lung, wholly circumscribed. At the apex much cicatricial tissue and many gray tubercles. Weight: 2 lbs. 13 ozs.

Bronchial glands enlarged and contain light nodules of cheesy consistence.

Heart: Fat scant; muscle pale; valves normal. Weight: 9½ ozs.

Liver: Slight nutmeg appearance. Gall-bladder contains a little black bile. Weight: 3 lbs. 13 ozs.

Pancreas small; no lesion. Weight: 1½ oz.

Left kidney: Ureter and supra-renal capsule normal. Capsule non-adherent; surface smooth, stars congested, a little pale between. On section cortex somewhat opaque and congested. Weight: 4½ ozs.

Right kidney presents same appearance as left, except that ureter and pelvis are much distended, and the congestion of the cortex is more marked. Weight: 4 ozs.

Mesenteric glands are slightly prominent, firm and white.

Stomach: In the cardiac portion near the larger curvature is a mass resembling the other tumors, apparently in the submucous coat. On section this is found to consist of two small nodules, each about one-quarter inch in diameter, of soft consistence. The stomach contains much mucus. Weight: 5½ ozs.

Intestines: Lower part of ileum and the large intestine much contracted; some moderate congestion in places.

Bladder a little congested. Prostate normal. Seminal vesicles distended. Left testicle normal.

A mass of nodular growths, one to one and a half inch in diameter, lies along the psoas muscle and vertebral column from Poupart's ligament to the diaphragm. A few isolated nodules lie along the thoracic vertebræ. The mass in the pelvis envelops in great part the large vessels there, and in the lower portion of the vena cava inferior and in the right common iliac vein there are firm clots, somewhat adherent in spots, gray and soft. A few small nodular growths project into the vena cava; some of these appear ulcerated.

Brain: In the falx cerebri, about one and one-half inch from the anterior end, is a tumor one inch in diameter, irregularly nodular, and of encephaloid consistence, reddish exteriorly, but gray in centre. Brain otherwise normal. Weight: 2 lbs. 11½ ozs.[1]

Microscopical examination of portions of the neoplasm from the pelvis, stomach, lungs, and bronchial glands shows the structure to be essentially the same in all. In a firm connective tissue stroma are many irregularly shaped alveoli, each sharply outlined and filled with a mass of round and polyhedral cells, having rather voluminous cell bodies and large nuclei, and heaped in the alveoli without supporting reticulum of any sort. These cell-nests are, many of them, of considerable size, and are very

[1] The specimens from this case are in the Museum of the College of Physicians and Surgeons, New York, Nos. 924–927.

abundant, while the stroma is rather meagre in amount, stamping the tumors as medullary or encephaloid carcinomata.

Similar examination of one of the small nodular growths projecting into the vena cava inferior shows it to be in direct continuity with a carcinomatous mass surrounding the vessel, through the wall of which it has evidently grown. In its centre is a cavity containing remnants of soft carcinoma tissue, but the greater part of its contents has been discharged into the lumen of the vein through an evident rupture of the nodule at its upper part, now closed by a loose clot. The accompanying drawing (Fig. 1) has been made from the specimen.

FIG. 1.

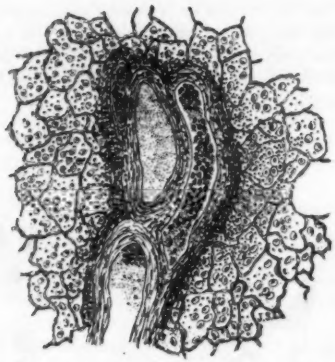
A. Carcinomatous nodule growing on right wall of vena cava inferior and projecting into its lumen. Many alveoli are visible, filled with epithelial cells or their débris. Above is a rupture of the wall of the nodule, closed now by a thrombus, through which some of the softened cancerous material has escaped into the lumen of the vessel. [× 12. The cells are represented proportionately somewhat too large.]

B. A group of the carcinoma cells from the same specimen. [× 500.]

In the lungs many of the smaller bloodvessels are plugged by masses of epithelial cells, similar in every particular to those described as occupying the alveoli of the cancerous tissue in the various organs. They must be regarded as emboli of carcinomatous material, demonstrating

that the blood current has been, in the present case, the transporter of much of the infectious material from which metastases developed (Fig. 2).

FIG. 2.



Group of bloodvessels in the lung, two of which are plugged by emboli of cancerous material. The tissue of the lung in the immediate neighborhood is somewhat infiltrated with small spheroidal cells, and there is broncho-pneumonia. The other two bloodvessels contain ordinary clots. [× 50.]

We have, then, a case of primary encephaloid carcinoma of the right testicle with secondary growth along the course of the lymphatics of the pelvis and spine, involvement of the vena cava inferior, growth through its wall, infection of the blood, and metastases in the lungs, stomach, and falx cerebri. The picture, as a whole, is not unusual. Carcinoma of the testicle, though not of as frequent occurrence as sarcoma of that organ, is by no means rare, is usually of encephaloid variety, commonly affects but one gland, and frequently follows traumatism of some kind. Its mode of extension, too, is usually that exemplified by the present case, along the lymphatics accompanying the spermatic bloodvessels, and an almost constant sequel is the formation of metastases. One feature of the case, however, demands consideration: metastasis in the stomach.

Striking verification of Virchow's aphorism that tumors occur most rarely as metastasis in those organs in which, as primary growths, they appear most often, exists in the relative frequency of primary and metastatic carcinomata of the stomach. As is well known, the stomach is one of the most frequent sites of primary cancer: metastasis in its wall is, on the other hand, a great rarity. Among statistics, tabulated by Coupland (1), of 89 cases of carcinoma primary in the mamma, collected from the records of the Middlesex Hospital for the years 1867 to 1875, mention is made of only one metastasis in the stomach. Török and Wittels-

höfer (2), in reviewing the records of the Vienna Pathological Institute, between the years 1817 and 1879, found reports of 366 cases of carcinoma of the mamma, of which there had been formation of metastasis in 220, but in only 8 was the stomach a site. Again, among more than 600 cases of carcinoma in all locations autopsied at the Berlin Pathological Institute, Grawitz (3) was able to find record of metastasis in the stomach in only 3[1]. These statistics suggest the frequency of metastatic carcinoma of the stomach to be about 1.1 per cent. of all cases of cancer.

Beside these statistics, there are in the literature more or less full records of 13 cases of metastatic carcinoma of the stomach. To a hasty review of these I ask attention, since from their study it is possible to deduce an explanation of the mode of production of metastases in the stomach, the truth of which is confirmed by the present case.

I. The earliest observation of metastatic carcinoma of the stomach, of which I am able to find record, is reported by Cohnheim (4). The primary tumor (scirrhus) was located in the breast, and many metastases are reported in different organs, among others in the stomach, where fourteen small cancerous masses were found scattered along the greater curvature near the pyloric extremity.

II. In 1876 Weigert (5) reported an exceedingly interesting case of epithelioma of the leg, not diagnosticated until after death, when metastatic growths were found distributed along the course of the pelvic and lumbar lymphatics and in nearly all the abdominal and thoracic viscera. The widespread distribution of the secondary tumors received explanation by the discovery of rupture into the vena cava inferior of a cancerous mass situated about the right supra-renal capsule, the infectious material thus finding entrance to the circulation. The metastasis in the stomach was situated at the fundus near the greater curvature, was about an inch in diameter and had ulcerated through the mucous membrane.

III. To the cases already cited four others were added by Grawitz (6) in 1881. In the first the primary tumor was an ulcerated epithelioma of the œsophagus. Two metastases, the only ones in the body, were found in the stomach. The first, about the size of a goose egg, ulcerated on its surface, was situated near the œsophageal orifice, involved all the coats of the stomach, and was connected with enlarged and cancerous lymph glands in the neighborhood. The second—smaller—lay near the first on the lesser curvature. There was in addition a simple ulcer of the stomach.

IV. In the second case the œsophagus was again the site of the primary tumor (epithelioma, ulcerated), which had penetrated into the pleural cavity, causing fatal pleurisy. Near the œsophageal opening was a large carcinomatous mass, ulcerated, involving all the layers of the stomach wall. Besides this, the only other metastasis was a small tumor in the liver.

V. Grawitz's third case is one of primary encephaloid carcinoma of the testicle. The stomach was dilated and on its anterior wall, midway between the fundus and pylorus, was a round metastasis about the size of a "plum," slightly ulcerated, occupying the mucous and submucous coats, and freely movable on the muscular. A second metastasis, smaller, on the greater curvature near the first, occupied the submucous coat only. Many metastases were found in other organs—in the lungs, pleuræ, liver, kidneys, suprarenals, intestine, and thyroid gland.

VI. His fourth and last case, was a recurrent scirrhus of the breast in a woman sixty-nine years of age. The stomach contained six rather flat tumors, about one-half inch in diameter, of rather dense consistence, and

[1] One of these had previously been reported in detail by Cohnheim (see Case I.).

confined to the submucous coat; none of them being ulcerated. This case is further noteworthy because of the great number of metastases in nearly every organ of the body, and especially in the large nerve-trunks of the brain and spinal cord. Involvement of the large veins near the heart was discovered, and small metastatic tumors were found in the interauricular septum.

VII. In 1882, in reviewing the records of the Leyden Clinic for about ten years, van Haren Noman (7) unearthed accounts of five additional cases of carcinoma of the stomach supposed to be metastasic, but, as the findings in his second case do not appear to me to warrant this conclusion, I shall mention the others only. The first was a case of primary carcinoma of the œsophagus at the level of the cricoid cartilage. It was ulcerated, and immediately below it was a large cauliflower excrescence nearly occluding the gullet. Below this the œsophagus was normal. In the stomach near the cardiac orifice was a metastasis about the size of a pea. This was the only metastasis in the body.

VIII. The third case was that of a man, nineteen years of age, who died of a large carcinoma of the left suprarenal capsule. The submucosa of the stomach was found to contain a number of metastatic tumors about the size of peas, over which the mucous coat was freely movable. Other metastases existed in the liver and peritoneum.

IX. The fourth case is that of a woman, thirty-five years old, whose pelvis was filled with a carcinomatous mass apparently originating from the rectum. The process extended upward through the lymphatics along the spine. A small ulcerated metastasis was found on the lesser curvature of the stomach.

X. Noman's fifth case was an ulcerated epithelioma of the œsophagus. Numerous metastases are recorded—in the liver, bones, and in the wall of the stomach.

XI. Two years later, in 1884, a case of primary epithelioma of the œsophagus was reported by Beck (8). The tumor ulcerated through the trachea, and the patient died of secondary gangrene of the lungs. In the stomach a metastasis was found, which Beck attributes to the implantation of carcinoma cells swallowed from the ulcerated tumor of the œsophagus.

XII. Finally, during the past year two additional cases have been reported by Zahn (9). In the first, the primary tumor (scirrhus) was situated in the left breast, the lymph-glands of the axilla being secondarily involved. A dense metastasis was found at the pyloric end of the stomach, in the submucous and muscular coats. Other metastases occurred in the omentum, peritoneum, ileum, colon, pancreas, and adventitia of the aorta. Zahn believes the transfer of infectious material, giving rise to the metastases, to have taken place through the bloodvessels.

XIII. In the second case, an ulcerated epithelioma occupied the wall of the œsophagus at about the level of the bifurcation of the trachea. Below this the œsophagus was apparently normal. Three small tumors, about the size of peas, in the wall of the stomach, were the only metastases to be found. These were all situated in the fundus.

These thirteen cases, with that here reported for the first time, may be conveniently tabulated as follows:

TABLE OF CASES OF METASTATIC CARCINOMA OF THE STOMACH.

Case.	Site of primary tumor.	Variety of primary tumor.	Metastases in stomach; number and situation.	Metastases in other organs.	Involvement of bloodvessels.
I. Cohnheim,	Mamma.	Scirrhus.	14, scattered along greater curvature near pylorus.	Very many.	
II. Weigert,	Leg.	Epithelioma.	1, at fundus, near greater curvature.	In nearly all the thoracic and abdominal viscera.	Rupture of cancerous mass into vena cava inferior.
III. Grawitz,	Œsophagus.	Epithelioma, ulcerated.	2, first near œsophageal orifice, ulcerated; second near by on lesser curvature; in addition, simple ulcer.	None.	
IV. Grawitz,	Œsophagus	Epithelioma, ulcerated.	1, near œsophageal opening ulcerated.	Small metastasis in liver the only other.	
V. Grawitz,	Testicle.	Encephaloid carcinoma.	2, first on anterior wall, about middle; second, on greater curvature.	Many, in lungs, liver, kidneys, suprarenals, intestine, thyroid gland.	
VI. Grawitz,	Mamma.	Scirrhus.	6, confined to submucous coat.	Very many, in nearly every organ of body.	Large veins of thorax involved.
VII. Noman,	Œsophagus.	Epithelioma(?) ulcerated.	1, near œsophageal orifice, about size of pea.	None.	
VIII. Noman,	Suprarenal capsule.	Carcinoma.	Several small metastases in submucous coat.	Numerous, in liver and peritoneum.	
IX. Noman,	Pelvis (rectum?)	Carcinoma.	1, small metastasis on lesser curvature.	?	
X. Noman,	Œsophagus.	Epithelioma, ulcerated.	One	Numerous, in liver, bones, etc.	
XI. Beck,	Œsophagus.	Epithelioma, ulcerated.	One.		
XII. Zahn,	Mamma.	Scirrhus.	1, at pyloric end of stomach.	In peritoneum, ileum, colon, pancreas, adventitia of aorta.	
XIII. Zahn,	Œsophagus.	Epithelioma, ulcerated.	3, in fundus.	None.	
XIV. Ely,	Testicle.	Encephaloid, carcinoma.	2, in submucosa, near greater curvature.	Very many in lungs, in falx cerebri, along pelvic and lumbar lymph vessels.	Ingrowth of tumor into vena cava inferior, and discharge of infectious material into its lumen.

It will be seen, from an inspection of this table, that the cases belong to two distinct sets; first, that in which the tumor in the stomach was the only, or almost the only, metastasis in the body; and, second, that in which many metastases were present in other organs. This difference at once suggests a different mode of infection in the two classes of cases, and on returning to the table we are struck by the fact, that in all the cases in which the tumor in the stomach was the only metastasis the primary tumor was situated in the œsophagus. These facts together suggest the possibility of direct transfer of portions of the primary tumor through the œsophagus to the stomach and engraftment upon its mucous membrane, in this way giving origin to a secondary growth. So accustomed are we to think of the blood- and lymph-vessels as the channels of transmission of cancerous material that the possibility of any other is apt to be overlooked. In the present instance, however, the anatomical arrangement of the lymphatics of the œsophagus is such as to make any transfer of material through them to the stomach practically impossible. Arising from a plexus lying in the submucosa of the gullet, the lymphatic trunks perforate the muscular wall and terminate in the glands of the posterior mediastinum, which in turn discharge into the thoracic duct. Only through occasional anastomoses of capillaries of the lymphatic plexus in the two organs is there any connection between the lymphatics of the œsophagus and stomach. The same difficulty stands in the way of crediting the bloodvessels with the transmission of the infectious material in these cases, for the circulation in the two organs is quite distinct. The possibility of such transfer through the bloodvessels is, of course, not to be denied (it is exemplified, I believe, in Case X.), but in such cases it is scarcely conceivable that there should be metastasis in the stomach only—a striking feature of the group of cases of which we are speaking.

As no reference is intended in this paper to cases of secondary involvement of the stomach by growth by continuity from other organs (such cases having been carefully excluded), the only remaining channel of communication between œsophagus and stomach is the lumen of these organs themselves. In favor of the view that this is in reality the path of transmission of infectious material in these cases, are the well-known tendency of œsophageal cancer to ulcerate, thus affording ample material, and the situation of the metastatic growths in the cardia of the stomach near the œsophageal opening. But, if we are to accept this theory, the possibility of engraftment of carcinomatous material upon a mucous membrane must be admitted. Notwithstanding many failures, a few measurably successful inoculations of carcinomatous material in animals are on record ([10]), and, in estimating the significance of negative results of inoculation experiments, the necessary existence of certain predisposing conditions before infection can occur should not be

forgotten. That these predisposing conditions are rarely present, is shown by the rarity of metastasis in the stomach in cases of carcinoma of the œsophagus. Among forty-two such cases collected by Petri ([11]), in only two was there metastasis in the stomach.[1] Furthermore, there are a number of cases of metastatic cancer on record apparently inexplicable on any other theory than that of engraftment of infectious material on a mucous surface, and among these I am inclined to class most cases of primary cancer of the œsophagus with metastasis in the stomach.

Let us now turn to a consideration of the conditions in the second set of cases which our table presents. It will be remembered, that in the cases forming this group metastases were widely distributed throughout the body. Dissemination of the infectious material through the blood or lymph vessels is consequently at once suggested, and that one of these must, in fact, be the channel of spread of the disease is confirmed by the remoteness of the primary tumor from the stomach.

The anatomical arrangement of the lymphatics of the stomach is such as to render the possibility of transmission of infectious material to it through them extremely remote. Arising in the wall of the stomach they pass upward and downward over its surface to the lesser and greater curvatures, respectively, where they enter a few small lymph nodes lying along the attached borders of the corresponding omenta. The lymphatics of the lesser curvature accompany the coronary vessels to the cardiac orifice, and then turn downward behind the pancreas to enter the cœliac glands; those of the greater curvature pass toward the pylorus, accompanying the right gastro-epiploic artery, and after being joined by lymphatics from the upper portion of the duodenum, also pass into the cœliac glands. A third series of lymphatics proceed from the left end of the stomach, and, following the course of the gastric branches of the splenic artery, unite with the lymphatics of the spleen. (Quain.) Now, the circulation in all these lymphatics is *away from* the stomach, not to it. If, therefore, we suppose infectious material to be carried to the stomach through the channel of its lymphatics, we must also suppose it to be transported in opposition to the current of the contained lymph and against the resistance of the valves of the lymph vessels—a supposition highly improbable in view of the fact that the lymph current itself is the transporting agent. Furthermore, in such transport, if it were possible, certain lymph nodes would necessarily be passed before the infectious material could reach the stomach, and these have, in most cases of metastatic carcinoma of the stomach, been found to be uninvolved in the new growth. In the present case, examination shows them to be healthy.

[1] These statistics are included in those of Grawitz referred to above.

Besides this negative evidence, we are in possession of certain facts distinctly in favor of the view that the blood-current is the transporting agent in this second group of cases. In the first place, these metastases are usually found on either the greater or lesser curvature, or very near them—directly in the course of the arterial supply of the stomach. Secondly, in a number of cases involvement of large veins in cancerous masses in various parts of the body has been discovered—positive demonstration of infection of the blood in these cases. And, finally, in this second group of cases other metastases, inexplicable apart from the theory of infection through the bloodvessels, are numerous in nearly every case.

As the result, then, of our study, we conclude that metastatic carcinoma of the stomach may arise in one of two ways: first, by implantation of carcinomatous material transported through the œsophagus from ulcerated cancer higher in the alimentary tract; and, second, by transport of infectious material from a distance through the blood-current; and that the lymphatics must be an extremely rare channel of transport of infectious material of any kind to the stomach.

Bibliography.

1. *Coupland, S.*, Cancer of both Breasts and Ovaries. Transactions of the Pathological Society of London, xxvii., 1876, 264.
2. *Török & Wittelshöfer*, Zur Statistik des Mamma-Carcinoms. Archiv f. klin. Chirurg., xxv., 1880, 873.
3. *Grawitz, P.*, Ueber Krebsmetastasen im Magen. Virchow's Archiv, lxxxvi., 1881, 159.
4. *Cohnheim, J.*, Krebsmetastasen des Magens. Virchow's Archiv, xxxviii., 1867, 142.
5. *Weigert, C.*, Ein Fall von secundärem Magen- und Darm-carcinom. Virchow's Archiv, lxvii., 1876, 513.
6. *Grawitz, P., loc. cit.*
7. *Van Haren Noman, D.*, Carcinoom-Metastasen van de Maag. Weekbl. van het Nederlandsch Tijdschr. voor Geneeskunde, 1882, No. 8. Review in Virchow-Hirsch's Jahresbericht, 1882, i. 286.
8. *Beck, H.*, Beiträge zur Geschwulstlehre. Präger Zeitschr. f. Heilkunde, 1884, Heft 6.
9. *Zahn, F. W.*, Ueber einige Fälle seltener Geschwulstmetastasen (Magen, Ovarien, Tonsillen). Virchow's Archiv, cxvii., 1889, 30.
10. *Hahn, E.*, Ueber Transplantation von carcinomatöser Haut. Berlin. klin. Wochenschrift, 1888, No. 21, 413.
11. *Petri, J.*, Ueber 42 im pathologischen Institut zu Berlin in der Zeit von 1859 bis März 1868 vorgekommenen Fälle von Krebs der Speiseröhre. Berliner Dissertation, 1868, 8; Review in Virchow-Hirsch's Jahresbericht, 1868, ii. 120.

CASE OF TYPICAL DERMATITIS HERPETIFORMIS.

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During the past month a typical example of this affection has been under almost daily observation, and the symptoms have been so pronounced and so characteristic of the usual form of the disease that I desire to add the case to the list of those already published. I describe the case, moreover, because there seemed to be some doubt as to the diagnosis in the minds of the several well-known practitioners who had charge of the gentleman before he came under my observation.

Mr. S., of Cincinnati, consulted me about the middle of January of the present year, with a letter describing his previous condition and treatment from Dr. Ransohoff, under whose care he had been for some time. The doctor's letter states that the patient (a man about fifty years of age and of dark complexion), who had before always enjoyed good health, manifested "squamous eczema" of both hands about a year ago. Four months later the present illness began with the development of blisters of the size of a pea or bean on the hands, wrists, feet, and ankles. In July last, a fully developed "pemphigus simplex" existed, the blebs being as large as a silver dollar, tense, and containing a clear fluid. These appeared in successive crops all over the body. During the four months of the acute attack hardly a square inch of the surface was left uninvaded. When the blebs disappeared excoriations of similar dimensions remained, but which were soon covered again with epidermis.

Loss in weight, most distressing itching ("pemphigus pruriginosus"), and from time to time septic manifestations; low, muttering delirium, slight elevation of temperature, rapid and irregular heart action, heavily coated, dry tongue, diarrhœa, and profuse night-sweats, were all present. Under sustaining treatment and local remedies, such as the continuous bath for two weeks, swathing in oil, oxide of zinc and bismuth bandages, the patient finally began to improve, and was able to leave home for a change of climate. When last seen the itching still persisted, and the skin, especially of the extremities, presented a livid hue and was sodden. It, moreover, was elevated in the form of large, indurated papules where formerly vesicles (which did not rupture) had existed. Dr. Ransohoff concludes his letter by stating that at first the diagnosis of dermatitis herpetiformis was made, but that later, when at its height, the disease seemed to possess the features of pemphigus pruriginosus; while still later, as improvement set in, it again approached dermatitis herpetiformis.

When I first saw the case the skin was much inflamed, excessively pigmented, of a dirty-looking, mottled, yellowish, brownish color, thickened, and the seat of an extensive eruption, consisting of small and large, more or less confluent, inflammatory patches, together with distinct individual lesions, occupying almost the entire general surface. The trunk and the upper and lower extremities were completely covered with a multiform eruption of a mixed chronic, subacute, and acute character, arising from a chronically inflamed, infiltrated, and toughened skin.

The greatest possible variety of inflammation existed in the form of a continuous mass or sheet of eruption, there being no healthy skin on the affected regions.

The lesions were macules, maculo-papules, papules, irregularly shaped and defined, flat or spread out (as in erythema multiforme), and of variable dimensions; vesico-papules and vesicles varying in size from a small pinhead to a pea, some being flat, glistening, and blister-like, others raised and surrounded with a somewhat drawn-together or puckered, highly inflamed base, as in herpes zoster. Many of the vesicles were minute and scarcely visible, except in oblique light. Here and there blebs existed, some small, others large; also small pustules, which evidently had begun as pustules, some of them being flat and punctate, pinhead and millet-seed sized.

On the shoulders and upper part of the back the existence of small, mostly miliary lesions (papules, papulo-vesicles, vesicles, and pustules), commingled and in all stages of evolution, and grouped into patches, some of them marginate, together with the marked pigmentation, suggested a likeness to a subacute, copious, miliary, herpetiform syphiloderm.

Excoriations and abrasions, due to scratching, blood-crusts, and slight yellowish and brownish crusts about the summits of vesicles and pustules, together with torn adherent epidermis, were also present, the whole picture being one of great multiformity, such as is noted in no other disease. As is well known, marked multiformity is often observed in scabies of several months' duration, but the affection here was even more polymorphous than occurs in that disease.

The lesions were aggregated, grouped, and disseminated, but the eruption as a whole was herpetiform,—the distribution, general arrangement of the individual lesions and of the patches, the progress and the manner of extension, all suggesting certain symptoms common to either erythema multiforme, herpes iris, or herpes simplex. Here and there the close grouping or bunching of three or four usually minute or small vesicles or vesico-pustules upon an inflamed base resembled an abortive patch of herpes zoster. The disease, however, bore more likeness to erythema multiforme of an advanced stage and of a severe type than to any other affection. Furthermore, itching and burning were present to an excessive degree, tormenting him by day and by night. He was, moreover, nervous, irritable, and anxious.

I will now enumerate the local remedies that were employed, and comment briefly on their action, which, it may be here remarked, was far from satisfactory.

The patient stated that a number of remedies had been previously used without affording much relief, among them the various soothing and more stimulating washes and ointments useful in eczema. Those prescribed by me consisted of sulphur in the form of ointment, both weak and strong, and also in the form of a dusting powder, "liquor carbonis detergens," ichthyol, as a wash and as an ointment, weak and strong; mild salicylic acid ointment, fluid extract of grindelia robusta as a lotion, weak and strong, and carbolic acid as a lotion, all having been made use of from time to time. The most useful were sulphur ointment, two to three drachms to the ounce, and "liquor carbonis detergens," from

one-half to two drachms to the ounce. These remedies, as well as others, were employed on various parts of the body, and with each experiment it was the rule to make the application of one remedy to one lateral half and another to the other half of the body with the view of determining the relative merits of each. The fluid extract of grindelia robusta on several occasions was found to be of some value, but the sulphur ointment was the most useful. This was used with considerable friction in order to break down the vesicles, as in the case of scabies, and on several occasions improved the skin and relieved the itching. Internally, antipyrin, antifebrin, phenacetin, chloral, and belladonna were all prescribed to meet symptoms, but with only moderate success.

During the four or five weeks which followed, the disease on two occasions improved considerably, but again became worse, the process manifesting itself in the form of exacerbations, each lasting about a week. Now and then large blebs formed here and there, especially on the thighs. On the trunk the lesions were at one time more erythematous, at another time more vesicular. The herpetiform element, more or less well-defined, remained constant, and constituted a feature of the disease.

In conclusion, the case may be summed up as showing the disease in its typical form, characterized by a multiform eruption of slightly raised, erythematous, herpetic patches, more or less confluent, together with papulo-vesicles and vesicles and blebs of variable size, shape, and outline, likewise as a rule herpetic. The thickening of the integument and the marked pigmentation from the oft-repeated attacks of eruption and scratching, and the itching and burning were also conspicuous symptoms. The general health was at times considerably disturbed, as shown by the nervous, anxious, irritable state, the loss of appetite and of sleep, and the excessive sweating and great thirst. The urine was cloudy and dark, and variable in quantity, as is the case in other forms of general nerve depression.

In the matter of diagnosis, the disease, during the period it was under my observation, could hardly be mistaken for any other affection, surely not pemphigus, because blebs were the exception; nor would eczema suggest itself, because of the prevailing herpetiform characters of the individual lesions and of the patches. Everywhere and on all occasions the eruption showed itself to be under the control of the peripheral nerves, as in the other more marked and better known forms of herpetic diseases.

THE FURTHER HISTORY OF A CASE OF ANEURISM OF THE THORACIC AORTA OF UNUSUALLY LARGE SIZE, ATTENDED WITH LOCALIZED UNILATERAL SWELLING.

By R. L. MacDonnell, B.A., M.D.,
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In this JOURNAL for March, 1888, I reported a case of aneurism of the thoracic aorta, in which sweating over a limited area of the chest wall had been repeatedly observed. At the time of the publication of that report the patient was in very good condition and had left the Montreal General Hospital, where he had spent the winter of 1885–86, and had gone to resume his occupation as the proprietor of a small eating house. The relief to the symptoms and the manifest diminution in the force of the pulsations in the area between the scapulæ where the tumor reached the chest-walls was attributed to the persistent use of the iodide of potassium.

The case has been under my observation for the last four years, though an interval of a year (1888–89) elapsed without my having seen him.

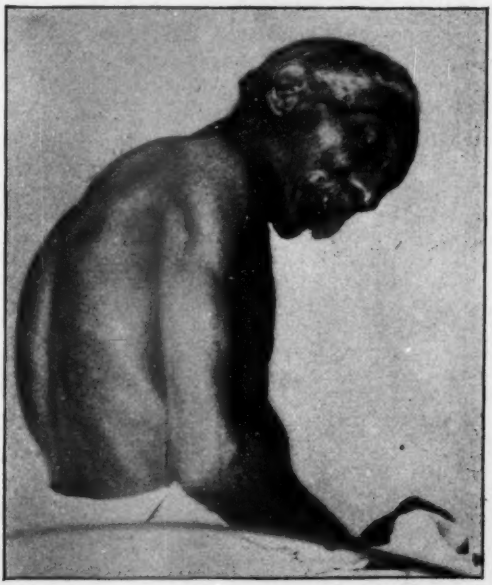
In the winter of 1887–88 he was in fair health and there was no increase in the area of percussion dulness in the left inter-scapular region, but he had lost weight to a considerable extent. There was no more dyspnœa, and he could sleep with comfort when lying down. There was very little cough.

During the last winter (1889–90) he began to suffer from paroxysms of coughing and from very severe pains in the chest. On November 21, 1889, I made a careful physical examination, comparing every point with the report already published in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES. He had been taking the iodide of potassium in ten-grain doses twice daily for four years. The pulse at both wrists was equal, but it had entirely lost its collapsing character and there was no longer any visible pulsation in the vessels of the neck. There was no perceptible bulging in the upper part of the chest. The systolic murmur, which was audible four years previously at the back of the chest, was no longer perceptible. There was absolute silence at the base of the left lung up to within two inches of the angle of the scapula.

During the month of November, 1889, the pulsation in the back was so feebly marked that, in order to demonstrate its existence to the students of my clinical class, I had to resort to the device of gumming upright slips of paper to the skin to render more evident the movements of the surface. But, as the winter advanced, there was a great increase in the thoracic pain, and the patient began to experience the semi-anginal attacks previously described. At this time he reported to me a recurrence of the sweating in the left side of the chest, which he had noticed for the first time since he had left the hospital in 1886. The whole of his brown skin was very dry, except over the area in the left

chest corresponding to the neighborhood of the fifth and sixth ribs. This limited area could be seen and felt to be moist, while the skin on the corresponding area on the other side was quite dry. Closer observation convinced me that this moisture appeared whenever the pain became severe, and that when the patient was comfortable and free from pain the skin of the left chest was perfectly dry.

In December, 1889, the patient entered the hospital for the last time. There was then great pain on movement and great muscular weakness. The sweating on the chest was distinctly visible for a few days after admission. Owing to the great pain on movement a complete examination of the chest was not practicable. After some days the pain diminished and it became no longer necessary to administer morphine. The sweating never reappeared. A great change was observed in the area of pulsation. On the 30th of December, after he had been in the hospital a week, this area was found to be extending. Formerly it might have been covered by a circle two inches in diameter, but now it measured 7 x 4 inches, and the pulsation was comparatively very forcible.



During the following fortnight there was much less suffering. A remarkable change took place in the back. The pulsating area now became prominent and protruded a good two inches from the general level of the surface extending from just below the vertebra prominens to the lumbar region and filling up the space between the midline and the angles of the ribs. In outline the tumor had the shape of a large sausage and appeared to lie just beneath the skin, and it measured eleven

inches from above downward, and four inches from side to side. It was universally pulsatile and felt as if there was very little tissue between the skin and the pulsating body. No thrill or bruit perceptible. There was comparative relief from pain coincident with the rapid outgrowth of the tumor. A fortnight later and the tumor measured 13 x 5 inches. The vertebral column does not appear to have been encroached upon, but the growth seems to have taken place in the direction of the angles of the ribs. Death took place on February 4, 1890, apparently by exhaustion. Most unfortunately the relatives objected to an autopsy.

The photograph reproduced in connection with this paper was taken instantaneously, and shows the appearance presented by the aneurism about a week before death. It is possible that the recent rapid development of the tumor may have been the result, not of steady growth of the main sac, but of the formation of a false sac by rupture of the original one, and by the extension of the blood thus extravasated to the tissues.

The case is of interest as showing the presence of a new symptom and the benefits of the iodide of potassium treatment. The enormous size to which a thoracic aneurism may attain without destroying life, is also well illustrated.

REVIEWS.

DISEASES OF WOMEN AND ABDOMINAL SURGERY. By LAWSON TAIT, F.R.C.S. Edin. and Eng., LL.D., M.D. (Honoris Causa) of the University of New York, Union University of Albany, and the College of Physicians and Surgeons of St. Louis; Professor of Gynecology in Queen's College, Birmingham; Surgeon to the Birmingham and Midland Hospital for Women, etc. Vol. I. 8vo., pp. viii., 547. Philadelphia: Lea Brothers & Co., 1889.

THE title of this work is somewhat misleading, inasmuch as it implies that it is a systematic treatise on gynecology. As a matter of fact, only one hundred and seventy-five pages of the present volume are devoted to pelvic affections not requiring treatment by laparotomy. From the "table of the organs concerned" it will be seen that it covers about the same ground as Greig Smith's monograph.

Mr. Tait has practically included under one cover revised editions of his earlier and little known work on *Diseases of Women* and his more recent one on *Diseases of the Ovaries*, which differ so widely in character that they can hardly be expected to assimilate. Why he should have devoted one-third of this volume to a subject which he appears to regard with indifference, he does not explain. We can certainly draw no other inference from the preface than that, aside from laparotomy, there is little in the treatment of diseases of women which deserves more than a passing notice. This is not a judicious position for one to take who aspires to remodel a department of medicine in which good work has been done on more conservative lines. The key-note is struck in the following sweeping remark in the preface:

> "The old-fashioned mechanical school—the teaching of the speculum, the sound, the caustic stick, and the pessary—has been practically killed, and an advanced eclecticism now prevails. This has largely grown out of the wonderful revelations obtained by the experiences of operative surgery."

We confess that the expression "advanced eclecticism" is somewhat vague; by the "old-fashioned mechanical school" is doubtless meant those misguided individuals who still pay some attention to non-surgical gynecology. Undeterred by this introduction, we are prepared to give full credit to the originality and genius of the author, to whom no candid man can deny that acknowledgment which, as he himself admits, the profession in America have cheerfully accorded.

Chapter I. is devoted to affections of the mons veneris, Chapter II. to diseases of the external genitals. In the latter the author makes some very sensible remarks on the delicate subject of sexual perversion in the female, and takes occasion to defend Baker Brown in his characteristic,

frank, and generous manner. It is a noble trait in Mr. Tait to espouse the cause of the dead in whose integrity of purpose he believes; we would venture to express our regret that he does not always show the same magnanimity toward the living who venture to differ from him.

In the section on the perineum he expresses his preference for Simpson's "shelf-pessary" for the relief of prolapsus, if any instrument is worn at all. We do not wonder that this crude appliance has not given him satisfaction after seeing the cut of it (Fig. 8). He has certainly had better results from operative treatment than most gynecologists. The flap-splitting operation is described on pages 68 and 69, where we read that "denuding operations are wrong in principle in so far as they are mere attempts to return the vagina and rectum to their completely tubular forms, and really make no attempt to restore the perineum."

Again, on page 70, the sweeping statement is made that "no other kind of operation will stand the strain of another labor." This is rather hard on the hundreds of operators who have been equally satisfied with other methods of perineorrhaphy. It is hardly the mark of a progressive mind to be content with only one method of doing a thing when another may be better in a given case. We deprecate the multiplication of complicated operations for the repair of lacerated perineum, but we submit that no single one is capable of universal application.

Chapter III., on the vagina, is introduced by four pages on gynecological examinations, in which there is much that we cannot allow to pass unchallenged. We regret that our examining chairs "would soon be the ruin of any British gynecologist who introduced them into his consulting-room." Doubtless our tables would be still more offensive to sensitive English ladies. While we agree with the author that the digital examination of virgins "requires, in every case, a strong justification," we are not prepared to admit that "any man who employs a speculum in the examination of a woman who is a virgin is unfit for the practice of his profession." It is stated that "the most complete and satisfactory" bimanual examination can be made with the patient lying on her left side, and that "when the appendages are perfectly normal the ovaries and tubes can be mapped out quite easily (?) with the fingers of one hand pressed on the groin opposite the side which is to be examined." The latter statement is decidedly at variance with the experience of practised examiners, who have seldom been able to recognize positively the normal appendages except in the most favorable cases and with the exercise of all the cautions recommended by Schultze. The beginner who adopts Mr. Tait's method will be sadly disappointed.

After reading (page 73) that "the speculum requires to be used in examination very rarely," and that "it should be used as an assistant for operative purposes only," we are quite prepared to hear that Sims's instrument is rarely necessary, and that all kinds of bivalve and trivalve specula are "dangerous and absolutely unnecessary." "If a man cannot do his work with Fergusson's speculum, occasionally replaced by the duck-bill, he ought to give it up. A workman who needs complicated tools is an inefficient one or a quack."

"Cases of true vaginismus may occur," says the author on page 79, "but I must assert that they are quite unknown to me." He elsewhere states that vaginismus is "a term which is widely used as a cloak to cover ignorance and carelessness," and that he does not believe in "the spasmodic contraction of a muscle which has existed only as a dissecting-

room curiosity." Without making further quotations we are willing to balance the recorded observations of Sims, Winckel, Emmet, Thomas, and other careful clinicians against this sweeping statement.

Anterior colporrhaphy is denounced on page 82 as a "delusion and a snare," while on the following page we read that "a speedy and safe cure" of dilatation of the urethra "may be effected by removing an elliptical piece of the mucous membrane with its long axis in the direction of the urethra, and bringing the edges together by stitches."

Diseases of the bladder and urethra are treated very superficially. The method of closing vesico-vaginal fistulæ, so successfully practised by Sims and his followers, is curtly dismissed as "bad," the only operation described being the flap-splitting one of Collis, which is "suitable to almost every case, and to many cases which could not be subjected to the older methods with the smallest chance of success." No reference is made to the work of Emmet, from which we infer that the author's study of this difficult subject has not been as thorough as we would wish. "I think," he says, "the only instruments wanted for operation on vaginal fistulæ are a Fergusson's glass-barrel speculum, a straight knife, and a curved-handled needle!"

Chapter IV., on the uterus, covers a wide range of subjects, which are grouped together apparently with little regard to sequence. For practical purposes we may consider that the subject of diseases of the uterus (in fact, the portion of the volume devoted to minor gynecology) is concluded on page 175, where the section on fibroid tumors begins. The author refuses to recognize laceration of the cervix as a lesion requiring operative treatment. "The real trouble," he affirms, "is the subinvolution and the consequent chronic metritis, and nothing more useless than 'Emmet's operation' has ever been introduced into surgical practice." He thus ignores well-established ideas, and sweeps aside by a wave of the hand all that meet with his disapproval. Dilatation of the cervix with tents he rejects as dangerous, preferring to use an appliance (Fig. 11) which in crudeness of design rivals the famous mediæval apparatus of the Hôtel de Cluny. As regards the treatment of cancer of the uterus he is an acknowledged pessimist. "For it there is no cure." Hysterectomy he dismisses with contempt, since "the few cases in which the disease does not recur are clearly errors of diagnosis." (!) The pathology of metritis is hopelessly confused by the attempt to draw a sharp distinction between a traumatic and a septic variety, and to make subinvolution identical with chronic metritis. Ninety per cent. of the author's cases of subinvolution and "all its complications" have yielded to five-grain doses of chlorate of potash given three times daily, with ergot and rest in bed during the menstrual periods—a unique record!

Emmet and Matthews Duncan again come in for sweeping denunciation in connection with the subject of peri- and parametritis. Nor does Virchow escape severe criticism for having by the use of these terms "introduced a wholesale confusion into gynecology which it will take many years yet of industrious work to get right."

Some idea of the author's position in regard to uterine displacements will be inferred from the introductory sentence, in which he states that there has been no real addition to our knowledge of the subject since Simpson's lectures in 1848. There is a good deal of truth in his strictures on the abuse of the operative treatment of anteflexion, though their force is weakened by the alternative which he himself offers—either purely con-

stitutional treatment or the removal of the tubes and ovaries. The radical operation he regards as "a far safer proceeding than the employment of intra-uterine stems." Such teaching as this cannot receive general acceptance. "I hate pessaries," he frankly admits, "and I never use them if I can help it." There is no indication from the context that he has ever taken the trouble to learn the elementary mechanical principles on which they act. Any gynecologist whose experience is limited to the "wedge pessary," figured on page 140, is scarcely in a position to discuss authoritatively the subject of displacements. Alexander's operation is decidedly condemned.

Eight pages are devoted to the infantile uterus—more than to the entire subject of displacements—the matter being largely a quotation from Dr. Johnstone's paper; the same applies to the section on uterus bicorporeus.

In taking leave of the subject of minor gynecology, we regret that Mr. Tait has not omitted this portion of the work entirely since it will certainly be the judgment of future readers, whose minds will be free from our narrow prejudices, that it has not added to his reputation either as a scientific observer or as a teacher. His attitude invites criticism. This is not an age in which even the most ardent hero-worshipper is disposed to follow blindly any leader who does not appeal to the intellect by the soundness of his reasoning, as well as dazzle the imagination by the brilliancy of his surgical achievements. Americans, as Mr. Tait must always admit, have been prompt to acknowledge the immense impulse which he has given to abdominal surgery, but this brilliant meteor which has shot across the sky can never extinguish the clear, steady light of those planets by which we have hitherto safely guided our course.

With much that relates to fibrous tumors of the uterus (which, by the way, ought to have been included in a separate chapter) we are already familiar in the author's former papers. On the subject of treatment he speaks with no uncertain sound. "Under no circumstances," he says, "do I sanction uterine tinkering with injections of astringents or electrical currents." In a patient under thirty he advises removal of the adnexa, even if the symptoms are not urgent, in order to arrest the growth of the tumor; in one over thirty-five, prompt resort to the operation if the rate of growth is rapid; in one over forty, palliative treatment, if possible, with a preference for laparotomy. A clear distinction is not made between intra- and extra-uterine tumors; in fact, the author seems to regard this as immaterial. From the brilliant results set forth in the table of statistics (262 cases of removal of the appendages with only four deaths) we are directed to the sharp contrast presented by the work of Apostoli and his followers (page 216). This is dismissed with a few words of disapproval. Nothing has been accomplished by the electrical treatment, and there is no prospect that there ever will be. As we contrast the patient plodder, who by sheer industry and perseverance has won for himself the respect and confidence of the scientific world, with the great Birmingham surgeon, we are reminded that "the race is not to the swift."

A separate chapter is devoted to the broad ligaments, concerning which the author says: "I doubt if there is any other *organ* (*sic*) of the body of so much importance in women." This strong statement is somewhat misleading, as appears later on; its importance is really due to the

organs enveloped by these peritoneal folds and their relations to morbid growths, not to any inherent importance in the so-called "ligaments" themselves. On page 228 we read that "hæmatoceles are quite common after all operations involving the broad ligament, and experienced surgeons are quite familiar with them." The writer expresses the opinion that they occur in eighty per cent. of *all* operations and rarely cause serious trouble. "Of course, writers of library papers and irresponsible and inexperienced writers of anonymous reviews cannot be expected to know anything about such occurrences, and their ignorance has to be pardoned." In the face of this magnanimous attitude on the part of the author, we may venture to call attention to the fact that in vaginal hysterectomy (with which we have had some acquaintance outside of the library) the broad ligaments are involved more than in any other pelvic operation, yet resulting hæmatocele is certainly rare. In the voluminous literature of the subject we miss any reference to it. The two tables which conclude this chapter speak for themselves—102 cases of abdominal section for cyst of the broad ligament, with 2 deaths, and 37 successive cases of pelvic abscess treated in the same manner without a fatal result.

Chapter VI., on the anatomy and physiology of the ovary, has been carefully revised and bears ample witness to the active mind and wide research of the author; we believe, however, that it was a mistake to include arrest of development, prolapse, and hernia of the ovary in this chapter, instead of under the chapter on diseases of the gland as in his former monograph.

The title of Chapter VII., which includes 137 pages, is clearly a misnomer. It is headed "The Fallopian Tube and Menstruation," whereas it includes a wide variety of subjects, such as pelvic congestion, salpingitis, oöphoritis, hermaphroditism, etc. It might, with advantage to the reader, have been split up into at least three short chapters, in which it would have been easier for him to find the information, for a clue to which he will often consult in vain the imperfect index (there is no table of contents). The pages on the relation of the tubes to menstruation are exceedingly interesting. Even those who may not entirely agree with Mr. Tait's deductions must admit that he has made out a strong case. We note an important statement on page 312, *apropos* of the discussion at the last meeting of the American Gynecological Society, on the subject of performing laparotomy for the removal of the appendages during menstruation. "It has come to me to be a rule," he says, "to select the immediate approach of menstruation as the time for operation in many cases, and to be in others quite indifferent on the subject." Considering its high source this must be accepted *ex cathedra*.

Among diseases of the tubes we miss any reference to neoplasms, and especially to tuberculous salpingitis, of which a laparotomist of Mr. Tait's unique experience must certainly have met with several examples. Diseases of the tubes and ovaries are mixed up in the same confusing manner as in the former book. In discussing gonorrhœal salpingitis the author takes occasion (on page 371) to scout at the "zymotic theory of inflammation, which is now the fashionable craze." His admission in the next sentence that he has been content to obtain his knowledge of bacteriology second-hand decidedly weakens the force of the criticism. We agree thoroughly with his remark on the following page that "abuse is not criticism." Hence we are not willing to undervalue the impor-

tance of the gonococcus on the strength of Mr. Tait's sweeping denial of its existence.

At the top of page 364 there is a sentence *in italics*, which we quote entire, on account of its importance, viz.: "I am now quite certain that in the hands of a competent operator there are no adhesions of the uterine appendages which cannot be overcome, and no case ought to be left unfinished. Incomplete operations are the opprobrium of abdominal surgery, and operators ought to be more discredited by them than by anything else." This is mischievous doctrine. No one will deny that it may apply to such an experienced operator as Mr. Tait, but among his enthusiastic followers in this country it is calculated to do great harm. We have seen its results in the operating room, where men who disliked to have it said that they abandoned an operation, have recklessly torn out adherent appendages after the manner of the post-mortem table, to which the patient was speedily transferred. Very few of us can venture to imitate Mr. Tait in this respect, call this hesitation, "lack of experience" or by any other term of reproach.

The sentence which follows the one quoted is no less radical in its bearing. We are told that

> "the retroverted and adherent uterus is a mere incident in the case and should be left alone." "Remove the appendages and arrest menstruation, and the uterus will cease to give trouble. The uterine adhesions are very liable to bleed, and to arrest this bleeding is a very difficult matter. In the few cases in which I have ventured to meddle with these I have had reason to regret my interference."

This is directly opposed to the every-day experience of those who have followed up the after-history of their patients, and we confess that we are unable to reconcile the difference of opinion, unless it is that Mr. Tait does not keep his patients under personal observation after they have been discharged as cured.

With the author's views on ectopic gestation we are already familiar, so that it will be sufficient to say that the concluding chapter on this subject is exhaustive and contains much that is interesting and suggestive. Even those who differ from him cannot withhold their admiration at the cogency and ingenuity of his arguments, based as they are upon his wonderful record in this line of work.

We have presented merely an outline of this volume, devoting less attention to the portion which deals with abdominal surgery, although it is the most important, because the reader is already more or less familiar with it. Many of the author's well-known views have been elaborated, especially those on tubal pathology. Mr. Tait never writes anything that does not command attention by reason of the originality of his ideas and the clear and forcible manner in which they are expressed. This is eminently true of the present work. Germs of truth are thickly scattered throughout it; single happily worded sentences express what another writer would have expanded into pages. Useful hints on the technique of surgical operations, ingenious theories on pathology, daring innovations on long-established rules—these succeed one another with a bewildering rapidity. The very want of coherence in Mr. Tait's book is typical of his phenomenal mental activity; his ideas crowd upon one another, and are apparently jotted down pretty much in the order in which they present themselves.

The style is terse and forcible. There is no element of doubt in the author's statement of facts and theories; if he thinks that they are so, they *are*, and that settles it. We have already referred to the personalities with which many pages bristle and which are out of place in a scientific treatise. Mr. Tait is too old a reformer to desire any longer the adoration of the young and inexperienced alone. His position has long been assured; it is hardly possible for him to add to his great reputation as a daring and original surgeon. Few reformers have ever enjoyed the present reward of their labors in such full measure as he; he can, therefore, well afford to be more temperate in his exultation and more tolerant of those who, while they admire his work, still claim the right to point out its flaws. But, with all his faults of omission and commission as an author, we cannot repress our admiration for the restless genius of the great surgeon, who can say with the lonely exile of St. Helena: "They may call me what they please, they cannot prevent me from being myself."

H. C. C.

ORIGINAL CONTRIBUTIONS TO OPHTHALMIC SURGERY. By J. R. WOLFE, M.D., F.R.C.S.E., Professor of Ophthalmology in St. Mungo's College; Senior Surgeon to the Glasgow Ophthalmic Institution. With illustrations. 8vo., pp. 97. London: J. & A. Churchill, 1890.

IT happens not infrequently that an instrument, a procedure, a doctrine, put forth with honest enthusiasm, accepted by the profession, and still widely popular, has meanwhile been mainly or entirely discarded by its author. So when a surgeon of ripe experience culls from his earlier work, as has here been done by Dr. Wolfe, that which he regards as worthy of more attention than has yet been bestowed upon it, the selections he makes are not without their especial interest. Then there is the probability that larger experience, and the benefit of the criticism received from his colleagues, have added materially to the value of the views expressed.

The method of cataract extraction here advocated by Dr. Wolfe is quite different from any now popular, and in spite of the satisfactory results yielded in his hands does not promise to come into general favor. He does a small iridectomy some days before the extraction, but the chief peculiarity of the operation is that the section of the cornea, usually made downward, is at first but partial, a bridge of tissue being left standing until the capsule of the lens has been freely lacerated, and the lens fairly liberated. Then the incision is completed with a knife having a blunt point. The Daviel method, now returning to professional favor under the title "simple extraction," and the earlier Graefe incisions are sharply, and we think not quite fairly, criticised.

Incidentally, it appears that the author does not think much of cocaine, and uses it little, if at all, believing that its decided influence over the nutrition of the part must be harmful and a source of danger.

Wolfe's operation for detached retina has found more favor, though chiefly outside of Great Britain. It consists in dissecting down to the sclerotic, opposite the point where, by careful ophthalmoscopic study. the sub-retinal fluid has been found inclined to settle, incising the

sclera obliquely with a sclerotome, and keeping the incision open with a spatula until the fluid has had opportunity to drain away. Then the eyes are closed, and the patient kept on his back for two or three days. In reporting the successful cases here introduced, we notice a disposition to tell about different things the patient was enabled to see, or do, but a general avoidance of any statement of the acuteness of vision in terms of the standards in common use among ophthalmologists. Such a disposition may mark the tardiness of an elderly man in adopting later methods of expression, but he who exhibits it lays himself open to the suspicion that he is trying to magnify unduly the success of his treatment.

The author's work in plastic surgery in demonstrating the feasibility of transplanting large areas of skin, and of the rabbit's conjunctiva, without pedicle, have received such general recognition both at home and abroad that no special mention of it here is necessary,

The collection concludes with the account of a case of tuberculosis starting in the iris and ciliary region after local injury. The illustrations include diagrams explanatory of operative procedures, and pictures of patients who have undergone plastic operations. E. J.

A Practical Treatise on Eczema and its Treatment. By M. J. Rae, M.D., Late Physician to the Blackburn and East Lancashire Infirmary, etc. 8vo., pp. 190. London: J. & A. Churchill, 1889.

It is stated that the volume has been prepared with the object of placing before the medical practitioner a full, yet succinct, history and description of the disease and its treatment, the work being written from the standpoint of a physician rather than that of a specialist. From a perusal of the pages, moreover, it is evident that the author's experience with the disease has not been a very large one, for we are struck by the absence of personal observations, such as one would expect to find in a monograph. The plan has rather been to collect and put forth the views of other writers. It must be accepted, therefore, as a compilation. A claim for originality can hardly be set up.

The essay does not go very deeply into the subject, but as far as it goes it is interesting. A variety of views on all points connected with the disease are presented, references, as a rule, being omitted. Some of the descriptions seem to us as being inaccurate or loose, as, for example, where in considering eczema ani it is stated that "deep fissures form around the anus, whence exudes an abundant, irritating discharge." Is the discharge here ever abundant? On another page: "High temperature producing violent perspiration causes eczema, forming a variety sometimes called miliaria rubra." Miliaria is usually regarded as distinct from eczema. Such statements, therefore, so different from the usually accepted views, call, we think, for some explanation.

In the matter of treatment the author is an enthusiast, for not only do we find a copious list of remedies, but many of them are endorsed in terms of unqualified approval, without, however, as a rule, giving the indications for their judicious employment. Some of the older English writers, such as Plumbe, Neligan, and Burgess are often quoted, while

the English authors and those of other countries of to-day are only meagrely referred to.

We meet with susprises not infrequently in the chapter on therapeutics, as where we read that mercury is "very efficacious in chronic and obstinate forms of the affection." In the same manner numerous other remedies and combinations are more or less highly lauded. With such an extensive armamentarium to draw upon, the beginner might feel that no difficulty ought to arise in curing any case of this disease. We miss throughout this chapter a guiding hand to inform us when to use and when not to use the remedies, and in what strength to employ them in the several stages of the disease. The knowing how to use the remedies, it must be admitted, is the secret of success in therapeutics. The book is written in an easy, agreeable style, which will win for it many readers; but, as already intimated, it can hardly be regarded as a substantial contribution to our knowledge of eczema.

PRACTICAL GUIDE TO THE DEMONSTRATION OF BACTERIA IN ANIMAL TISSUES. (FOR THE USE OF STUDENTS AND PRACTITIONERS.) By DR. H. KÜHNE, Wiesbaden. TRANSLATED WITH THE CONSENT OF THE AUTHOR AND EDITED BY VINCENT DORMER HARRIS, M.D. Lond., F.R.C.P., Demonstrator of Physiology at St. Bartholomew's Hospital; Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, etc., etc. Small 8vo., pp. viii., 53. London: Baillière, Tindall & Cox, 1890.

A manual for beginners should, we believe, contain the fundamental principles of the subject treated, so clearly expounded and so logically arranged as to insure their remembrance by the student. This we sadly miss in the little book before us. We look for a concise statement of the commonly employed methods of staining bacteria in tissues, and find instead only a rambling account of others which the author would substitute, more intricate, most of them admittedly requiring skilful manipulation to obtain the desired result.

Notwithstanding these defects, the book will be found to contain a number of useful hints for the more advanced worker desirous of preparing handsome specimens for purposes of demonstration, etc. Among these may be mentioned the use of aniline oil and of an alcoholic solution of fluorescin as differentiating agents for tissues so delicate as to be easily injured by acids. Again, it is advised in cases where lengthy immersion of sections in alcohol or aniline oil is necessary for dehydration, to diminish the decolorizing action of these liquids by the addition of a little of the dye.

The method most highly recommended for general work, and for which the claim is made that it will stain nearly every species of bacteria except the *bacillus tuberculosis*, is as follows: The sections are immersed for thirty minutes in carbolic methylene-blue (methylene-blue, 1.5 grm.; absolute alcohol, 10 c.c.; carbolic acid, five per cent. solution, 100 c.c.), they are then washed and passed through acidulated water (hydrochloric acid, 10 drops; water, 500 c.c.) into lithia water (saturated solution of lithium carbonate, 6 to 8 drops; water, 10 c.c.). After remaining in

this for a few minutes they are washed in water and passed into alcohol. The dehydration and differentiation are continued in aniline oil to which a little methylene-blue has been added, then in aniline oil alone, then in oil of cedar, bergamot or cloves, and finally in xylol, preparatory to mounting in balsam. A number of modifications of this method are suggested by which contrast stains may be obtained, but for these, and for the author's modifications of Gram's method and of the stain for tubercle bacilli, the reader is referred to the book itself. J. S. E.

A MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D. 12mo., pp. 431. Philadelphia: Lea Brothers & Co., 1889.

THE fourth edition of this manual appears revised and enlarged by the addition of chapters upon inter-current diseases of pregnancy and resuscitation of stillborn children. In subject matter, illustrations, and general arrangement, the manual is the best of its kind published in this country. It is up to the proven points of obstetrics, with the exception of a few unimportant and disputed theories. It will be a great gain when obstetric nomenclature is simplified as much as possible, and when the number of positions to be memorized is reduced to the smallest number, giving room in such a manual for more important matter. The success of the manual is an encouraging protest against the many quiz compends, essentials, and other primers and books for the easy learning of obstetrics which are much too common and too extensively used in the colleges; the ambition of the quiz masters to cram students for examination leads to a parrot-like process of memorizing which must leave the student deficient in well-digested knowledge when brought to grapple with practical life.

Dr. King's *Manual* is an excellent type of the class of books which a student can consult to advantage while attending lectures, and which that now classical type of medical man, "the busy practitioner," can use to refresh his over-crowded memory at convenient intervals.

The wholesale manufacture of doctors by medical colleges places upon the market annually what was aptly described in a recent medical address as "a machine-made article," and one of the implements extensively employed in turning out this product is the quiz primer. While the ground-work of obstetrics may be stated simply and with such brevity that any man of ordinary intelligence can easily apprehend it, any thorough and satisfactory knowledge of the subject must be gained by constant reference to at least one logically written and thoroughly prepared treatise. That a reaction in the minds of thoughtful men is taking place upon this evil of our system of education, is exemplified by a recent action of one of our obstetricians, who framed his examination papers in such a manner that the answers could not be obtained from a quiz compend. E. P. D.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

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Action of Caffeine.

In *La Médecine Moderne* of March 14, 1890, there appears an excellent article by Sée and Lapicque on the action of caffeine, including a discussion of the action of other substances acting in a somewhat similar manner. Their argument has been epitomized as follows: Caffeine and the entire series of medicaments once called *medicaments d'épargne*, are entirely devoid of any property of preserving the organism in its integrity during inanition. They really augment the waste of carbon, and do not restrain the other organic losses. The active principle of tea and coffee does not produce its effects by reason of the nitrogen which it contains, and by breaking up in the system, as Gubler imagined; it passes unaltered in the urine.

How does it happen that coffee both augments denutrition and prevents the untoward effects of food-deprivation? Bear in mind that it is one thing to resist inanition a long time while keeping absolutely at rest, and another to perform physical and mental work when on short rations for a day or two. It is the latter condition which is now under consideration.

The condition for resisting inanition is to reduce the losses to the minimum, if one is obliged to pass a certain period of time without food, but in inaction; here, if ever, something that will "spare the tissues" is needed. Cold-blooded animals, whose activity is much less than that of warm-blooded animals, resist inanition ten times better than the latter. Warm-blooded animals that hibernate realize in that state a condition where the resistance to inanition is enormous, and where waste-restraining is at its maximum. The ideal condition of tissue-sparing, then, is one of absolute immobility with profound sleep, in which the activity of the muscles and special senses is suppressed while respiration and circulation are slowed; here there is little expenditure and no work.

Now, with caffeine, coca, and the like, we obtain just the opposite—that

is, a condition suitable for intense work; but we obtain this only at the expense of much tissue-waste. The law of conservation of energy applies here as everywhere. The animal machine can work only by consuming combustibles, and it is precisely by energizing the combustions of the economy that caffeine enables muscular work to be performed during fasting. It is in this respect that caffeine takes the place of food; but there is only one point of view from which it can be said to have any such substitutional action, namely, that of a general tonic excitation produced by its ingestion. And even here the action is not different from that immediately experienced by the ingestion of food, as it is easy to show.

Take the case of a man, for instance, who is doing some kind of work as walking. At the end of a certain time he experiences the sensation of hunger and fatigue—that is, along with certain special sensations referred to the stomach, he experiences a general enfeeblement; his legs tire; it now requires an effort to walk, which he did before automatically, almost unconsciously. The heart's action becomes slower, the pulse more feeble. We will now suppose that he eats something. As soon as a small quantity of food is introduced into his stomach the malaise and fatigue disappear; he again finds himself in trim for work; the heart is reinvigorated, the respirations have greater amplitude. This sense of restoration is almost instantaneous, following the ingestion of the very first mouthful, especially if the food is warm.

Let us analyze the case and see what we find. When hunger is felt, inhibiting work, it is not because the substances which furnish the energy necessary for this work—fat, glycogen, etc.—are exhausted, nor have the aliments just ingested renewed these reserves. In fact, it is the very ingestion of aliments which has revived the failing forces; the effect is produced, not only before these aliments are absorbed, but even before they have begun to be attacked by the gastric juice. We have, then, to do here with a purely nervous phenomenon. We know not what part to assign to peripheral excitations consisting in buccal, gustative, tactile, and stomachal sensations acting on the nerve-centres to raise their tone, and what to assign to the immediate absorption of a very small portion of the food immediately soluble and absorbable, such as dextrine, sugar, peptones, etc.; both processes are probably factors in the renewal so speedily felt. It cannot be the reconstitution of the reserves which enables the individual refreshed to resume his work, as in the case of a locomotive which takes on coal and water. The ingested aliments cannot be utilized till later, but their ingestion enables the organism to utilize immediately the residue of previous reserves.

The cause, in fact, of that enfeeblement, which is an integral part of the sensation of hunger, is that the organism, by an instinctive adaptation, of itself restrains its activity and compels repose, in order to diminish the waste of its substance and better to defend its integrity against inanition.

The researches of physiologists, in fact, have shown that from the very commencement of inanition, while the reserves are being drawn upon, the rate of exchanges suffers diminution; the temperature falls several tenths; urea and carbonic acid are excreted in lessened quantity. The mechanism by which this inhibition of chemical actions is produced, consists evidently in a sort of cerebral torpor. As it is the nervous system which, by its activity, regulates that of the organism in general, and, moreover, as this is much

more sensitive than any other system to the variations of the internal or external environment, the nervous centres are the first to feel the effects of denutrition and of blood-impoverishment, and unless some cause of excitation supervenes, by nervous inhibition alone the organism is brought to that state of atony where effort is impossible, but which is favorable to the long resistance of inanition. The latter may last till all the reserves are consumed, till the nervous substance itself undergoes denutrition, and starvation ends the scene; but at the beginning of the period of inanition, we see the organism realize of itself that sparing of the tissue which some would ascribe to caffeine as one of its properties; it is, in fact, this tissue-sparing which is the obstacle to labor, and caffeine and its congeners do good and restore activity only by increasing the consumption of reserves and the denutritive processes generally.

From the above explanation, it will be seen that the theory is that caffeine, when taken for its physiological effects, and in the manner indicated by the French experimenters, whose experiments on man are set forth in the article above mentioned, does not act differently from ordinary food, the ingestion of which immediately rallies the languishing nervous system, and by its intermediation the muscles, causing the latter to utilize for work the reserves stored up in their tissues. There can be no doubt that this is the way in which the natives of Peru derive benefit from coca when performing their exhausting labors. But any supposition that the use of coca and other stimulants prevents denutrition is a glaring fallacy—the contrary is the truth; while, on the other hand, foods, while producing an immediate stimulant effect like that of coca and caffeine, are the real restrainers of denutrition by furnishing materials for the repair of waste.—*Boston Medical and Surgical Journal*, April 17, 1890.

The Fatal After-action of Chloroform.

A new phase of the chloroform question is touched upon in a paper by Ostertag published in the *Deutsche medizinal Zeitung* of January 16, 1890. In the literature of the fatal cases of the administration of chloroform as an anæsthetic, a few are on record where death was only produced a number of hours after the production of the narcosis. Thus Langenbeck published in 1850 a case of death after extirpation of the shoulder, which occurred seventeen hours after the operation. Berend also published cases in which it did not occur until sixty hours after the production of narcosis. Ungar and Strassmann called attention to the fact that chloroform inhalation in certain instances had produced fatty degeneration of internal organs, especially of the heart and liver, but without producing any detectable alteration in the blood. These results seem to have attracted but little notice, though it is evident that they should draw attention to a possible phase of chloroform death which is worthy of careful study.

Ostertag's experiments were made upon various animals, and the administration of chloroform was continued for hours. In apparently healthy rabbits the inhalation of chloroform was followed by marked fatty infiltration of the liver and fatty degeneration of the myocardium, of the muscular part of the diaphragm, as well as of the kidneys and liver. In cats the fatty deposits were especially confined to the epithelium of the liver and kidneys, while the

other organs, especially the heart, were free. In dogs there was a slight fatty infiltration of the liver, and a great accumulation of oil globules in the urinary canals. The results show that the effects of chloroform differ very considerably in different groups of animals.

Attention is likewise called to the alterations produced in the blood as the result of the action of chloroform, and he claims that a great number of the deaths are due to disturbance in the respiratory functions of the red blood-corpuscles, although a number of factors are likewise concerned in the production of this result. The author finds that fatty metamorphosis of the cardiac muscle is one of the causes of death. He claims that it is quite conceivable that the preliminary stages of fatty degeneration, even although not having passed to a complete degeneration, may be concerned in the reduction of the functional activity of the heart. Fatty degeneration of the skeletal muscles, which was especially noted in the diaphragm, may likewise prove an important factor in the disturbance of respiration; while, of course, the depressing action on the respiratory centre is likewise of prime importance. Further than this, the interference of the respiration leads to the accumulation of carbonic dioxide in the blood, and this may act as a depressant on the heart's muscle. Of course it will not do to apply these results, without further study, directly to man, for it is quite conceivable that there may be as marked differences between the action of chloroform on man and on the lower animals, as were noted in the different groups of animals experimented upon by the author.—*Therapeutic Gazette*, March, 1890.

ANALGESIC ACTION OF EXALGINE.

The analgesic action of exalgine formed the subject of a lecture recently delivered by DR. T. R. FRASER at the Royal Infirmary, Edinburgh. He prefaces his remarks, which, however, refer chiefly to the clinical side of this subject, by a few words concerning the rationale of the analgesic action of recent derivatives of the aromatic group—the so-called antipyretics. He believes that their action differs from that of opium, belladonna, aconite, chloral, and the anæsthetics, in that the latter affect the whole or an extensive part of the nervous system, while the former appear to produce a condition similar or analogous to one observed in certain nervous affections, where we find analgesia without any loss of tactile or thermal sensibility, a condition which pathologists attribute to lesions involving only a small part of the nervous apparatus.

All other compounds of this group, which have been studied clinically, possess antipyretic, diaphoretic, and antiseptic properties, which preponderate over their analgesic action. In exalgine or methyl-acetanilide, however, the analgesic action predominates, while the antithermic effects can only be obtained by the administration of large quantities of the drug bordering on the region of the toxic dose.

The writer gives some carefully compiled details from his own clinical observations, which, unfortunately, must be omitted for want of space. Exalgine was given to twenty-one patients suffering from sixteen different forms of disease. The usual dose was half a grain, although one grain was

not infrequently given, and once or twice four grains. In was administered in all eighty-eight times, as may be seen from the following table:

	Number of observations.	Number successful.	Number unsuccessful or doubtful.
Facial neuralgia	8	8	...
Sciatica	10	9	1
Herpetic neuralgia	10	9	1
Neuralgia of arm in hemiplegia	11	11	...
Locomotor ataxia, first case	2	2	...
Locomotor ataxia, second case	1	1	...
Toothache, first case	2	2	...
Toothache, second case	2	2	...
Toothache, third case	2	2	..
Toothache, fourth case	2	...	2
Cardiac angina	2	2	...
Pleuritic pain, first case	1	...	1
Pleuritic pain, second case	4	4	...
Rheumatic synovitis	4	4	...
Blennorrhagic rheumatism	2	1	1
Gastric cancer	2	2	...
Gastric ulcer, cicatrized	4	2	2
Cancer of abdomen	10	6	4
Cancer of liver	2	...	2
Aneurism of aorta	4	...	4
Lumbar abscess	3	...	3
	88	67	21

The table shows that 88 separate administrations of exalgine were made; that in 67 of them pain was relieved, while in 21 no distinct benefit was gained. The condition of some of the patients, however, was not one in which the existing pain was likely to be alleviated by any substance which did not produce general narcotism; as, for example, in the last three cases in the table, cancer of the liver, aneurism of the aorta with erosion of vertebræ, and lumbar abscess. By far the best results were obtained in neuralgia, and if the separate observations of nervous affections (toothache included) be grouped together (in the table between facial neuralgia and angina), we find that in 52 administrations 48 were successful and only 4 unsuccessful. This is a very good result, even allowing for the many fallacies which must enter into statistics of this sort, no unpleasant disturbances or inconveniences having been recorded in this series of clinical observations.—*British Medical Journal*, February 15, 1890.

The Use and Action of Acidum Trichloraceticum.

As far as Dr. H. A. Ehrmann, of New York, an assistant of Professor Jurasz's out-patient throat clinic at Heidelberg, has been able to ascertain, the medical profession has only been acquainted with the local use of this corrosive substance through some remarks made by Dr. von Stein, of Moscow, at the last International Congress of Laryngologists in Paris.

This acid, whose formula is CCl_3COOH, occurs in colorless, transparent, rhomboidal crystals, with a slightly pungent smell, and a corroding action

to the tongue; they are freely soluble in water and alcohol, melt at 125.6° F. and boil at 383° F., giving off an aromatic-smelling steam. Owing to their extremely hygroscopic nature they are prepared in small bottles hermetically sealed; for, after opening one of these, only about half of the crystals can be applied as such before the remainder deliquesce. To make an application, the writer picks a crystal up on the end of an ordinary silver probe, and drops it on the required spot; with a little practice this manipulation becomes easy. A slight cup-shaped depression in the bulb of an ordinary probe also makes a good carrier. In the mouth and throat local anæsthesia is not needed; in the nose the application should be preceded by spraying in a little ten per cent. cocaine solution.

After applying this remedy to a mucous membrane, a smooth, dry, ivory-colored eschar forms, which adheres closely, does not spread, produces no offensive smell, does not set up inflammatory processes in its vicinity, and is painless, except for a sense of burning lasting about one minute. It falls off in from two to six days, leaving the surface beneath intact, so that a fresh application can be made if needed. Its indications are the same as for chromic acid.

The writer also uses a one per cent. solution of this substance in glycerine, to which he had previously added one-half of one per cent. of iodine and some iodide of potash. This was applied to the throat with a brush or swab, for diffuse chronic pharyngitis, pharyngitis sicca, and follicular tonsillitis. Encouraging results were obtained in all his cases, excepting two patients treated by this method for ozæna.—*Münchener medicin. Wochenschrift*, March 4, 1890.

Exalgin as an Antipyrectic and Antineuralgic.

Dr. Heinz, of Breslau, has tried exalgin as an antipyretic in erysipelas, articular rheumatism, and abdominal typhus without getting any antipyretic effects, which is peculiar on account of its relation to antifebrin. The remedy was also experimented with in hemicrania, articular rheumatism, and influenza with regard to its anodyne action. Doses of 3 to 3¾ grains were inactive, or had only a slight effect. A pronounced action was only seen from 6 to 7½ grains (in adults). Cyanosis was never observed. In a case of migraine 6 grains caused an aggravation of the symptoms with roaring in the ears and an increase of the pain. The author himself twice observed that 7½ grains produced in his own case roaring in the ears and a feeling of exhilaration. In general, exalgin as an anodyne has an action similar to that of antifebrin, phenacetin, or antipyrine. In influenza, as well as in the other diseases, it has no advantage over antifebrin; however, it does not cause cyanosis, and where an anodyne without antipyresis is desired, it may be substituted for the last. It cannot be used for any length of time on account of its destructive action upon the blood; doses above 7½ grains should be avoided.—*Berlin. klinische Wochenschrift*, March 17, 1890.

Methacetin as an Antipyretic and Antineuralgic.

Dr. C. Seidler has experimented with methacetin as an antipyretic in tuberculosis and febrile conditions; in acute articular rheumatism as an

antipyretic and antineuralgic. In moderate fever, doses of ½ to ¾ grain were sufficient to reduce the temperature to the normal; with higher temperature larger doses (¾ to 1 grain) were necessary. The action of the remedy was prompt on account of its easy solubility, and in one-half hour the thermometer would show a fall in the temperature. This fall was gradual and reached the minimum in about three hours and lasted about one hour. The rise which followed this was relatively more rapid than the fall. A rigor may quite frequently introduce the rapid rise. The pulse also sinks with the temperature, but the beats become stronger and the pulse-wave fuller. In two cases of acute rheumatism, one with quite high fever and the other with a swelling of the joints, the remedy acted promptly and surely, the pain decreasing on the first day, and on the third day the pain, fever, and swelling had disappeared; there was no relapse. It acted well also in the subacute cases. As an antineuralgic it was less efficacious, and inferior to other remedies.

Dr. Heinz, of Breslau, also experimented with methacetin as an antipyretic. In general, quite large doses were tolerated. In typhus abdominalis the remedy reduced the temperature about 3° C., the fall being often accompanied by profuse sweating. The rise took place gradually; rigors were never observed. A longer period of apyrexia may be maintained by repeating the remedy in smaller doses when the temperature begins to ascend. Doses of 15 grains caused no serious, disagreeable symptoms; the temperature, however, sinking somewhat under the normal. In a few cases this was observed to occur from 7½ grs. In adults this dose is fully large enough as an antipyretic. The remedy was also used in articular rheumatism, in migraine, and in influenza. In the former affection the remedy was efficacious in the few cases observed. The dose as an anodyne is double that as an antipyretic. Compared with phenacetin, the dose is one-half as large.—*Berlin. klinische Wochenschrift*, April 14 and March 17, 1890.

Ichthyol in Diseases of Women.

The local action of ichthyol upon inflammation and pain led Dr. H. W. Freund to use the remedy in the gynecological clinic of the University of Strasburg. It was used in chronic parametritis, chronic and subacute perimetritis, with exudations and formation of cicatricial bands; in vaginal cicatrices, as well as in those of the vaginal portion of the uterus; in chronic metritis, in inflammations of the ovaries, tubes, and surrounding tissues; in erosions of the cervix, and in pruritus of the external genitals, with astonishingly rapid and complete results. The remedy was given at the same time both externally and internally. For internal administration a pill was found convenient, one and one-half grain, in the beginning, three times daily; later this dose was doubled. Externally the following formula was employed:

℞.—Ammon. sulfo-ichthyol . . . . . ʒj½.
Glycerin . . . . . fl. ʒiij.

S.—To be applied upon vaginal tampons.

It was also used as an ointment—lanolin and ichthyol in equal parts; or, as a soap, combined with green soap, ammon. sulfo-ichthyolic, drachms 2,

with sapo. virid., ounces 8. In these two latter forms it is applied and rubbed on to the abdominal walls. Finally, it is also given as a rectal suppository, 1 gr. of ichthyol to 2 of butter of cocoa. The odor may be disguised by cumarin. Cervical erosions were induced to heal by applying the pure ichthyol directly to the lesion. In pruritus the unguent or a 10 per cent. solution in water may be used locally. The internal administration of the remedy influences the general condition, increasing the appetite and regulating the digestion and action of the bowels. It had no perceptible action upon the urinary excretion. The remedy was well tolerated, and no secondary action was noticed.

The results of the intravaginal applications were astonishing, its absorbent action being most prominent. In two cases thick cicatricial bands due to caustics disappeared in a few days. Parametritic cicatrices became tractable, thin, and gave way to a great extent. A quite extensive exudate in Douglas's cul-de-sac, with slight rises of temperature, disappeared in sixteen days. A case of a patient suffering from the consequences of gonorrhœic salpingitis is also mentioned: the tubes were hard, large, and immovable; had been subjected to the usual treatment without success; the energetic action of ichthyol produced a cure within a few days, a copious mucous discharge pouring from the genitals. A troublesome intestinal catarrh was also removed in the same case by means of ichthyol suppositories. In painful conditions the remedy acted as a sedative, especially in inflammation of the cul-de-sac of Douglas and perimetritis with tenesmus ani. It had no disagreeable action on the skin or mucous membrane. When there is great sensitiveness a chloral-glycerin (2 to 5 per cent.) may precede the ichthyol treatment.—*Berliner klinische Wochenschrift*, March 17, 1890.

Intramuscular Injections of Mercury in the Treatment of Syphilis.

In the *Archiv für Dermatologie und Syphilis*, 1889, Dr. Wateaszewski discusses the effect of the injection of insoluble mercurial preparations into the muscles.

The mercurial salts, recommended for their parasiticide effect on theoretical grounds, have not shown any advantage, and practically the choice lies between calomel, the yellow oxide of mercury, and the gray oil of mercury.

With respect to calomel, while it is undoubtedly very effectual in the treatment of syphilis, it has proved dangerous to the patient, Kuneberg having collected seven fatal cases; but the author found that dangerous symptoms could to a great extent be avoided by reducing the dose originally suggested by Smirnoff from three grains to not more than two-thirds of a grain, and this, too, without sacrificing its therapeutic efficacy. He regards the gray oil as still more dangerous, instancing Kaposi's fatal case and Hallopeau's case of severe stomatitis and several cases of fat embolisms in the lungs which are on record. A decided preference is therefore to be given to the yellow oxide of mercury, but in the reduced dose of two-thirds of a grain to one grain. These doses he has given thousands of times without ill effect, while the doses originally recommended, of from two grains to two grains and a half, have produced serious symptoms, such as adynamia, diarrhœa, stomatitis, etc.

The choice of the vehicle for injection is not unimportant. Those hitherto used have been generally glycerin, olive, almond, or paraffin oils, or gum-arabic mucilage. The author has made experiments on this point, injecting these vehicles alone into the jugular veins of cats, and found that serious embolic pneumonia was excited by the oily fluids, while the mucilage only produced scattered embolic foci of small size, which were absorbed without subsequent reaction of any importance.

These experiments have a practical bearing, for in intramuscular injections a vein is occasionally pierced, and serious pneumonia has ensued.

Glycerin excites local irritation, and is therefore unsuitable. Dr. Watraszewki therefore finally decides that mucilage (gum arabic 1 part, water 120 parts) is the best, as it combines all the essentials of a vehicle, viz.: 1. It can be made of the proper consistence to hold the powder in suspension. 2. It has no local irritating effect. 3. It does not decompose the mercurial salt. 4. It excites no general disturbance.—*Lancet*, March 8, 1890.

Uses of Cannabis Indica.

The difficulty of obtaining reliable preparations of cannabis indica is one of the chief obstacles to its use. Dr. Reynolds has had exceptional opportunities to get good cannabis indica, and the results of his administration of the drug during a number of years lead him to believe that when pure and carefully administered it is one of the most valuable remedies we possess.

Some of its most markedly valuable results are to be found in curious conditions of the mind. For example, in senile insomnia with wandering; where an elderly person, probably with brain softening in the "delirium form," is fidgety at night, goes to bed, gets up again, thinks he has some appointment to keep, and must dress himself and go out to keep it; but is quite rational during the day with its stimuli of real occupations. In this class of cases nothing is comparable in utility to a moderate dose of Indian hemp; one-quarter to one-third of a grain of the extract, given at night. It has been absolutely successful for months, and, indeed, years, without any increase of the dose. In alcoholic delirium it is very uncertain, in melancholia it is sometimes of service, in mania it is worse than useless, either in the chronic or in the acute form. In the occasional night restlessness of patients with general paralysis it has proved of eminent utility.

In almost all painful maladies, like neuralgias and migraine, it is the most useful of drugs. The lightning pains of ataxic patients, and the multiform miseries of tingling, formication, and numbness, so common in the limbs of gouty people, are relieved by it. On the other hand, it has proved useless in sciatica, myodynia, gastrodynia, and enteralgia.

It is, of course, desirable that the drug should always be obtained from the same source, and that a minimum dose should be given to begin with, and that the dose should be very gradually and cautiously increased. Toxic effects were caused by one-fourth but never by one-fifth of a grain of the extract, therefore one-fifth is a good beginning dose for an adult, one-tenth of a grain for a child. The best form is the tincture, in drops, on a small piece of sugar or bread; if given in a mixture it is apt to separate and give uneven doses. Pills often become hard and insoluble, and their strength cannot be

so readily and so gradually increased. For adults, where a gradually increasing dose is required, a tincture with a strength of one grain of the extract in ten drops of the tincture is useful. Two drops of such a tincture may be used, repeated in not less than four to six hours, and gradually increased by one drop every third or fourth day, until relief is obtained or the drug is proved to be useless.—*Lancet*, March 22, 1890.

Hydrastinine in Uterine Hemorrhage.

In the *Therapeutische Monatshefte* for January there appeared an interesting paper by Dr. Edmund Falk on the use of hydrastinine in uterine hemorrhage. The hydrastis canadensis has been employed for a long time, especially in America, as a remedial agent. Its active principle, hydrastin, consists of white prismatic crystals, somewhat resembling strychnine in appearance, insoluble in water, but soluble in alcohol, chloroform, and ether. Hydrastin, when oxidized, is decomposed into hydrastinine and opianic acid. Hydrastinine is very sparingly soluble in warm water, but it unites with acids forming soluble salts. Dr. Falk experimented with the hydrochlorate on account of its easy solubility, employing subcutaneously a ten per cent. solution. He contrasted the effects of hydrastin and hydrastinine on animals, and found that the former caused paralysis of the heart, but the latter acted as a cardiac stimulant, and produced strong contractions of the smaller bloodvessels. These features indicated its therapeutical importance, and led him to employ it in cases of endometritic and uterine fibroid tumors, in which excessive bleeding was a prominent symptom. He found it more efficient in restraining hemorrhage than ergotine.—*Lancet*, March 29, 1890.

Dr. Falk has made repeated demonstrations with hydrastinine, and suggests it as a remedy in the treatment of uterine hemorrhages, as being much more prompt and sustained in its action than ergotine. Report is made of twenty-six cases systematically and successfully treated with it. The twenty-six patients received in all four hundred injections of hydrastinine hydrochloride in the form of a solution varying from five to ten per cent. There was no noticeable irritation following these injections at any time. The patients were unanimous as to the painlessness of the applications and the freedom from that subsequent discomfort which so often arises from the use of ergotin.—*New York Medical Journal*, March 22, 1890.

Sulphonal for Excessive Sweating.

Dr. Schmidt gives, in his inaugural thesis at the University of Würzburg, a review of everything that has been published on the effect of sulphonal. His own experiments are confined to six cases, chiefly of phthisical patients, in which he administered the drug for the relief of nocturnal sweats in doses of seven grains and a half. The result was generally favorable. He concludes that sulphonal is a useful hypnotic in most cases in doses of from fifteen grains to two scruples. It is also successfully administered in the stage of excitement in mental disease. Digestion and circulation are rarely interfered with, but occasionally more or less vertigo or ataxy is observed in consequence. In heart disease the drug has sometimes no effect; while in other

cases, especially those where the compensation is insufficient, the action of the heart is interfered with, and great care has to be used in giving sulphonal to such patients.

In doses of from three grains and a half to seven grains it may be safely used to prevent excessive sweating.—*Lancet*, March 15, 1890.

Agaricinic Acid.

Agaricin has for some time been employed in the night-sweats of phthisis. It is now stated that Professor Kahler, of Prague, and some other observers, have found a new preparation of this substance—agaricinic acid—very efficacious for the same purpose. A dose of from one-third to three-quarters of a grain was well borne and produced no unpleasant effects, except that the largest of these quantities sometimes caused a slight and transient nausea. As a rule, a pill containing one-seventh of a grain is sufficient. It should be given about six o'clock in the evening.—*Lancet*, April 12, 1890.

MEDICINE.

UNDER THE CHARGE OF

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On Influenza.

Eichhorst (*Correspondenzblatt für schweiz. Aertze*, March 1, 1890, 137), in reviewing the recent epidemic of influenza in Switzerland, refers to the fact that the earliest epidemic of it seen there occurred in 1557, and the latest before the present one in 1864.

As regards the actual number of cases, the statistical reports are manifestly incorrect and far too low. He estimates that at least 40,000 cases occurred in Zurich. The source of the epidemic as regards Zurich cannot be determined, nor can the manner of its spread over the city. He is firmly of the conviction that it is often directly transmissible from person to person, and cites several instances, including his own case and that of others of his family, in proof of this. He admits, however, that cases occur, and he has repeatedly seen such, which seem to prove the opposite of this. Whatever the *materies morbi* may be, it is certainly a poison of astonishing power. As to whether the infection is at first local or through the blood, he has seen instances which seem to show that it at least can be in the latter way.

Regarding the symptoms, he follows as the best Landouzy's division of influenza into a cephalic, a thoracic, and an abdominal form. According to

the author's experience, the especial characteristic of the last epidemic was the evidence of severe involvement of the nervous system; and he reports in detail several cases illustrative of this and of the severity of the nervous sequelæ; such as symmetrical gangrene, localized paralyses, mania, aphasia. Eichhorst further calls attention to the fact that, although most cases are accompanied by fever, yet afebrile cases frequently occur and that these are particularly liable to exhibit severe nervous symptoms.

Individual peculiarities are particularly marked in grippe, and members of the same family often exhibit entirely different course and symptoms. Three autopsies were made on the fatal cases in his clinic. In one there were two small pneumonic foci, the size of a plum, in the left lung, and besides these, nothing except that the Malpighian tufts were excessively hyperæmic. A second case exhibited a bilateral fibrinous inflammation of the lungs, and a third case suffered from enormous *adipositas*. Eichhorst knows of no specifics for the treatment of the disease. Quinine was without effect in most of his cases. Antipyrine or phenacetin or salicylic acid was found useful for the troublesome nervous symptoms.

Pulmonary Lesions in Influenza.

Kahler (*La Sem. Méd.*, 1890, 80) divides into three classes the severe pulmonary alterations which he has observed in influenza. The first consists in abscesses or purulent pleurisy, consecutive or independent. All these cases terminated rapidly in death on the third or fourth days. As abscess and primary purulent pleurisy are of so rare occurrence, it is necessary to suppose some specific cause in these cases; and the appearance of these conditions on the day of the appearance of the influenza, or upon the day succeeding it, proves that we have to do with the action of a virus still unknown, and not with a secondary infection.

The second category consists in what the author designates lobular pneumomia, or mild pleuro-pneumonia. In these cases the influenza, accompanied by bronchitis, follows its ordinary course, but the patient does not convalesce; the pulse and respiration remain frequent, fever persists, and little by little the symptoms of pulmonary infiltration develop, increase, and are only followed by a very slow recovery. These pneumonias are often accompanied by a serous or sero-hemorrhagic pleurisy. The pneumonias observed during the epidemic differed from ordinary pneumonia, in the absence of characteristic sputum, in the defervescence by lysis, and in the character of the fever, which is not so continuous as in ordinary pneumonia.

The third category of lesions is characterized by grave bronchitis, which can often terminate in death, and which is often accompanied by catarrhal pneumonia.

Pathology of Influenza.

Leyden (*Berliner klin. Wochenschr.*, 1890, No. 10), in an address before the Berlin Clinical Society, reported the case of a woman who had influenza in December and who never seemed to recover from it. Finally, early in January she suffered from persistent vomiting for eight days, and passed cloudy urine and in small amount, and œdema developed. Examination showed the urine

to be hemorrhagic and very highly albuminous, as in acute nephritis; and though her condition improved, she died about the last of January from exhaustion. At the autopsy the kidneys were found in the first stages of Bright's disease, and microscopically exhibited what Klebs has described as glomerulo-nephritis, the most frequent form after acute infectious diseases. He says he has read of just such a case of fatal nephritis after influenza. In the present epidemic he has seen three cases of nephritis, two of them combined with pneumonia and ending fatally, but no autopsy could be obtained in these. The case now described is peculiar in that the nephritis was directly sequent to uncomplicated influenza—an additional proof that influenza, even without complications, is to be considered an infectious disease. Moreover other complications and sequelæ, as disturbances of the heart, sudden collapse, and paralyses and muscular atrophies, have been observed after influenza as after other infectious diseases.

The author is inclined to the view that the disorder is due to a miasmatic infection, but he does not consider the question yet settled.

As regards influenza pneumonia, Leyden calls attention to this as the commonest and most dangerous complication, and to the fact that it exhibits marked peculiarities. Every epidemic of influenza has been accompanied by cases of pneumonia in large numbers. He does not believe that it is merely an accidental complication. Its peculiarities consist in that it seldom begins with chill or is accompanied by severe inflammatory symptoms. Further, the local process is seldom typical—three to four days elapsing before crepitation can be heard in any locality, and that this then sometimes disappears by the next day and develops in another spot. Well-marked dulness is unusual. The sputum is seldom rusty, sometimes absent, and in some cases catarrhal and tinged with blood. In other cases he has observed an abundant serous sputum. Then, too, genuine crises are seldom witnessed; the course of the disease is milder, and it is not so fatal as ordinary pneumonia, except in elderly or debilitated persons. Finally, he remarks the peculiarity that grippe-pneumonia attacks all classes—young and old, well and those already sick with other diseases.

Some of the cases of pneumonia under his observation were undoubtedly genuine pneumonia; others clearly varied greatly in symptoms, which raises the question as to whether different forms of pneumonia may occur with influenza.

Only two autopsies were made on cases dying with pneumonia in his clinic. The course of the disease had not been at all typical, and had had the character of grippal pneumonia. The post-mortem examination showed the presence of a pulmonary infiltration, which, though called "fibrinous pneumonia," lacked firmness, and the cut section was smooth instead of being granular. Microscopical examination showed no solid hepatization, but an incomplete filling of the alveoli with large multinuclear cells.

A series of bacteriological studies was made in the author's clinic upon the various sorts of sputum seen in influenza-pneumonia. Diplococci or these with streptococci were found, or, still oftener, diplococci with staphylococci. A second series of studies was made upon pleural exudate occurring in influenza, and this revealed streptococci, diplococci, and staphylococci.

Still a third series was made upon the two fatal cases of pneumonia referred to, and upon another case of pneumonia with meningitis. It was found that three sorts of microbes were present in these pneumonias, viz., diplococci—*i. e.*, Fränkel's pneumococci—streptococci, and staphylococci. This agrees for the most part with the observations of other investigators on grippal pneumonia. He concludes that the pneumonia of influenza is of several varieties, viz., the genuine form due to diplococci, and varying somewhat though not greatly from the typical, and mixed forms. In two other cases under the author's observation there was a pneumonia caused exclusively by streptococci, since the purulent pleural exudate which accompanied it contained only streptococci.

Leyden takes the ground that in the presence of influenza these different microbes penetrate into the body and there produce diseases analogous to those which they would produce without the influence of influenza. This gives no information regarding the cause of the influenza itself—whether a specific microbe or a miasma; and the author expresses himself as inclining to the latter.

The Antiseptic After-treatment of Vaccination.

John Bark (*British Medical Journal*, 1890, i. 233), after a yearly experience in the last five years of over 2000 primary vaccinations, says that the accident most to be dreaded is the occasional occurrence of erysipelas, which may, of course, end fatally by septic absorption. He has noticed that all the attacks of blood-poisoning following vaccination have been in children in whom cleanliness was almost entirely neglected, or who were living in houses where the hygienic surroundings were bad; and he entertains no doubt that all the attacks of blood-poisoning were due to one or other of these causes, and that they were not the direct result of the operation.

Having a profound conviction of the value of antisepsis in surgery, he has for over a year employed an antiseptic pad for the protection of the vaccinated arms of children, applying it after the opening of the vesicles on the eighth day, before which date, in his experience, septic absorption does not take place.

The pad is composed either of boracic or eucalyptus absorbent cotton, or, better, of perchloride wood-wool wadding, and covered at the back and edges with antiseptic gauze. Two straps of soft half-inch tape fasten the pad to the upper arm, and a similar tape passing from the sternum to the opposite axilla prevents the pad from slipping down.

The dressing should not be disturbed for at least six days. The advantages claimed by the writer for the form of protection are: 1. It protects the arm from external violence. 2. It absorbs all discharges. 3. It reduces the risk of septic absorption. 4. It cannot be used a second time like ordinary shields, which are often the dangerously employed again and again. 5. It is extremely cheap.

Thomsen's Disease.

Hale White (*British Medical Journal*, 1890, i. 241) exhibited at the Medical Society of London a case of Thomsen's disease in a boy of nineteen

years, whose father, one sister, and two cousins were also affected with it. The disease began when he was a child. There was the characteristic stiffness on voluntary movement throughout the body. The fingers when flexed could not again be extended for eight seconds. The second time the duration of the immobility after flexion was four seconds, and it grew gradually less after each effort. Nearly all the voluntary movements of the body were implicated, though the muscles of the eyes and larynx and the interossei were uninvolved, as were the acts of defecation, micturition, and respiration.

On mechanical stimulation of either motor nerves or muscles, the latter contracted more readily than normal, but the contraction and relaxation were slower than normal. The electrical reactions generally were normal, but ACC. was, in some muscles, easier to obtain than KCC.

GEORGE HERSCHELL showed two brothers, aged twenty-eight and eighteen years, suffering from myotonia congenita. They belonged to a family of ten children, five of whom were affected similarly. The first movement of a muscle after long repose was exaggerated, and a condition of tense rigidity remained for nearly a minute after the voluntary stimulus was withdrawn. Muscular rigidity was produced by any sudden movement, particularly in climbing and walking upstairs. The arms and legs were chiefly affected, the jaws very slightly and occasionally, if at all. The knee-jerk was normal after the stiffness caused by the first movement of the leg had passed off. The affection commenced in childhood.

DELAYED RESOLUTION IN PNEUMONIA.

CIMBALI (*Münch. med. Wochenschr.*, February 18, 1890) concludes, at the close of an address on this subject, that delayed resolution in pneumonia occurs in debilitated individuals (particularly in malarial cachexia), and almost always in severe cases, as a result of cardiac weakness. After the crisis, the physical signs remain unchanged, the sputum pneumonic, and often there are at times evening rises of temperature.

In Cimbali's cases resolution was always complete by four to six weeks after the crisis, and there was no instance of relapse. Resolution in all the cases proceeded parallel with but in advance of the improvement in the general condition of the patient, and the therapy consisted, therefore, chiefly in increasing the resisting power of the organism. Finally, the author points out that a pneumonic lung in which resolution has been delayed offers a favorable nidus for the growth of tuberole bacilli, on account of which fact the patients in this stage are to be guarded with special care against the possibility of tubercular infection.

OBSERVATIONS ON THE TREATMENT OF EMPYEMA.

PEL (*Zeitschrift f. klin. Med.*, 1890, xvii. 199), after referring to the fact that the proper method of treating empyema appears to be by no means settled, takes up the discussion of this subject. In the last eight years he has had under observation about 80 cases in his clinic and about 20 cases in private practice; they have been treated in different ways, according to the methods most in vogue at different periods, although for the last three years he has followed a more definite plan which he has found to give the best results.

Regard was had to—1. The age of the patient. 2. The cause of the disease. 3. The extent. 4. The nature of the exudate. 5. The period of the disease. 6. The general condition of the patient.

The different methods of treatment employed were:

1. The simple puncture, performed once or often.
2. Aspiration followed by washing out of the pleural cavity.
3. Permanent aspiration (method of Bülau).
4. Radical incision.
5. Resection of one or several ribs with incision of the pleura.
6. Expectant treatment.

He discusses these various methods of treatment, as exemplified by a number of cases whose details he reports, and draws conclusions which may be summarized as follows:

1. The pathological indication of empyema is different in different cases; depending upon (*a*) the etiology, (*b*) the extent of the exudation, (*c*) the character of the pus, (*d*) the duration of the disease, (*e*) the age of the patient, and (*f*) the general condition and the constitution of the patient.

2. Treatment is to be determined by a consideration of all these factors; and must be conducted strictly according to individual conditions.

3. As far as the idea of a general method of treatment can be entertained, the radical incision, sometimes combined with resection of the ribs, is by far the efficient method, and is the only one which assures definite results. In very recent cases, however, the radical operation must not be too quickly undertaken, not only on account of the danger of infecting the pleura from without, but on account of the possibility of a recrudescence of the pleural inflammation. In practice such cases would be seldom encountered.

4. Simple aspiration, performed once or several times, is only exceptionally followed by good results, even in empyema in children. It is indicated only in small, circumscribed, and especially meta-pneumonic empyema, where no single symptom demands immediate and total removal of the pus, and yet the general condition of the patient does not permit of expectant treatment. In the case of large collections of pus aspiration is only allowed under stress of circumstances, or in cases in which only palliation is intended.

5. Aspiration followed by washing out of the pleural cavity is not to be recommended.

6. Permanent aspiration (Bülau's method) is best suited to recent cases with thin fluid, sero-purulent contents. In other cases less hope can be entertained of a favorable result.

7. An expectant procedure (*i. e.*, suitable general treatment without operation) is adapted to those cases in which there is present a small circumscribed empyema without such symptoms as fever, general weakness, rapid pulse, and disturbed digestion, demanding the operative removal of the pus. Especially is this true if the process has been preceded by a croupous inflammation of the lungs. To proceed to incision in these cases as soon as pus has been discovered, is to overlook the many natural recoveries which take place under these circumstances. If, under proper treatment, the empyema is not absorbed or discharged by a bronchus, and if the general condition of the patient does not justify further expectant treatment, simple aspiration should be first tried, and then incision, if the other be unsucessful.

The Formation of Hospitals for Consumptives.

In a discussion in the Society for Internal Medicine, on the establishment of hospitals for consumptives, CORNET (*La Sem. Méd.*, 1890, 78) said that it was now generally admitted that a patient with phthisis could communicate the disease to the members of his family, but that the importance and extent of this danger were still discussed. He believes that the disease is communicated in hospitals much more frequently than is ordinarily supposed; the great slowness with which the infection develops causing the fact of the contagion to be overlooked. It has been claimed that physicians should become oftener affected by it than they do, were the disease so contagious. That they are not is due to the fact that at the time of their visits to the sick the bacilli, which have been stirred up by the cleaning of the room, have settled on the walls, furniture, etc., and the danger is at this time, therefore, not so great. Besides, statistics do show that a large number of those in attendance upon phthisical patients in hospitals contract the disease; for, in spite of all that has been done by the authorities, prophylactic measures are in many hospitals totally disregarded. The author, therefore, strongly recommends the construction of special hospitals for this disease.

GERHARDT took the same ground as to the need of special hospitals for this disease, arguing for the contagiousness of phthisis from the point of view of his experience; while FÜRBRINGER and some others argued against the establishment of such institutions.

Retardation of the Heart-beat—Brachycardia.

RIEGEL (*Zeitsch. f. klin. Med.*, 1890, xvii. 221–291) publishes a most elaborate and instructive article upon retardation of the pulse, of which we can give but a brief abstract. He has himself for a long time paid special attention to the subject, and now combines his experience with an exhaustive review of the literature in the study of the occurrence, frequency, mode of origin, and indications of brachycardia.

The title "retardation of the pulse" is not quite accurate. Cases frequently occur in which the pulse does not indicate as many contractions of the heart as palpation or auscultation shows actually takes place. The heart-beats may sometimes be double or even treble the number of pulse-waves. Cases have frequently been reported as instances of brachycardia in which this condition was present. Pulsus bigeminus, in which the second beat is excessively weak, has been mistaken for retardation of the pulse.

The author excludes all such cases from the category of brachycardia, and claims that it is not the number of pulse-waves but that of heart-contractions which is the criterion.

The normal number of heart-beats per minute has been variously stated. He agrees with the majority of writers in considering a pulse of 60 or under as indicating brachycardia, and excludes from consideration all cases over that, or in which the heart's action does not correspond with that of the pulse. He has examined in the last seven years

	4484	men	and	3083	women	= total	7567
and found	710	"	"	331	"	= "	1041

instances of brachycardia. The preponderance of males he considers of no import.

He divides brachycardia into:

I. That occurring under physiological conditions.

II. That occurring under pathological conditions, although it is often difficult to determine to which class a case is to be assigned.

I. Physiological brachycardia.

1. *Puerperal brachycardia.* It is not uncommon to see the pulse beating from 44 to 60 per minute in the healthy puerperal state, and it has been reduced even as low as 34. The duration of the retardation is from some hours to ten or twelve days, or even longer. The nature of the labor exerts no influence on it. It is seen after premature labor as well as that at term; the presence of the slightest pathological condition during the puerperium hinders its development. The most varying explanations have been given of its cause. The principal of these are: (*a*) increase of the arterial tension and of the blood pressure; (*b*) absorption of the fat of the degenerative uterus; (*c*) disturbances of innervation; (*d*) mental and bodily rest; (*e*) diminution of the work thrown on the heart by the removal of the demands made by the fœtus; (*f*) increase of the vital capacity of the lungs. Riegel discusses these theories very briefly, and quotes from the authors who support them.

2. *Brachycardia from hunger.* It has been shown by the experience of Lissauer on fasting Hebrews that the frequency of the pulse is less on fast days, though showing variations.

3. *Brachycardia depending on individual peculiarities.* Grob described 6 cases of this sort out of 3578 individuals observed. Riegel entertains a doubt about some of them, and emphasizes the importance of determining that the slowness of the pulse is more or less constant, and not due to the presence of some pathological condition. He cites a few other cases from medical literature, but believes that many of them cannot properly be included in this category, and holds that the retardation of pulse from this cause is rare.

II. Pathological brachycardia. All of the author's 1041 cases are included in three groups. He combines in it the "idiopathic" and "symptomatic" forms of Grob.

1. *Brachycardia in convalescence from acute febrile diseases.* 282 cases of this sort were observed, occurring in pneumonia; recurrent, typhoid, and intermittent fever; articular rheumatism; febricula and influenza; diphtheritis, scarlatina, morbilli; variola; varicella, and erysipelas. A tabular arrangement is given showing the number of instances of each. The condition followed in about one-seventh of the total number of cases of fever. It is especially apt to occur in the fall of temperature if antipyretics or digitalis have been employed. He quotes extensively the opinions of different writers and recorded instances of slowing of pulse after fevers. In his experience it is especially apt to occur in young and strong individuals, and in cases which have run an uncomplicated course. The retardation may accompany the crisis, or occur more gradually and increasingly. It lasts a very variable time; the general conditions do not seem to be affected by it as a rule, though cases have been reported in which severe symptoms attended its development. He discusses the proposed explanations of its cause, adopting as the most rational that of Traube, that it is an evidence of exhaustion; the resistance which the heart

offers to nervous impulses being increased through exhaustion, and consequently the organ responding only slowly after the influence of the fever is removed.

2. *Brachycardia in diseases of the digestive organs.* The largest number of cases observed by Riegel were of this class, viz., 379, divided among very various affections; those in which it occurred oftenest being ulcus and carcinoma ventriculi, simple gastrectasia, gastric catarrh, chronic dyspepsia, catarrhal icterus and diseases of the liver, and diseases of the oral cavity and throat. He has been able to find but few cases reported in the literature. The degree of retardation noticed was often great, the pulse beating 40 to 45, and in one case of dyspepsia 34. The brachycardia usually disappears with the *disease*, but not universally with the acute *symptoms*. The cause of the retardation is easily explainable in many cases on the theory of reflex inhibitory influence through the vagus, in others it is not clear. Icterus was the cause in a number of cases; that icterus produces this result has long been known, and is now generally admitted to be due to the influence of the bile acids upon the cardiac ganglia. Most of the cases following diseases of the mouth and throat can more properly be relegated to the preceding class.

3. *Brachycardia in diseases of the respiratory organs.* 87 cases are included here (not including pneumonia, referred to the first group). Little is to be found in medical literature on the subject. The greater number of cases of this class seen by Riegel occurred in emphysema. In this disease the cause was probably the increased pressure on the vagi in the overfilled lungs, as well as the action of blood containing an abnormal amount of carbonic dioxide. In other conditions the cause was often not easily discoverable; though in some the retardation might properly have been referred to the first class as convalescence-brachycardia.

4. *Brachycardia in diseases of the circulation.* Only a small number, 47 cases, of this kind were seen, and the ratio to the total number of circulatory diseases observed was also small. All cases of irregularity of the heart, etc., and of the retarding action of drugs, were excluded. The condition was relatively most common in diseases of the myocardium, especially fatty degeneration. Riegel reviews carefully many of the expressed views and reported cases of other writers, illustrating brachycardia in fatty degeneration of the heart, sclerosis and thrombosis of the coronary arteries, aortic stenosis, diseases of the aorta, cardiac over-strain, angina pectoris, mitral stenosis, diseases of the pericardium, and congenital heart-lesions. He concludes from these, with a study of his own cases, that although brachycardia is quite frequently seen in fatty degeneration and in sclerosis of the coronary arteries, as well as in certain valvular lesions, it is in no sense a constant and pathognomonic symptom of any certain diseases of the heart. He regards it as of rare occurrence in heart disease. Its cause is doubtless different in different cases, but it only occurs in a weak and insufficiently nourished heart, whatever the actual circulatory disease may be. Thus a certain process may, or may not, produce brachycardia, according as the heart is or is not weak. A true neurasthenia of the heart has also been described as a cause of brachycardia.

5. *Brachycardia in diseases of the urinary organs.* Riegel has observed 64 instances of this, divided among cystitis and acute, chronic, and non-

scarlatinal nephritis. He quotes the little which is to be found in medical literature regarding it. He has for years observed its occurrence in nephritis, and considers it to be always associated with diminished excretion of urine and an increase in arterial tension. This and the retardation are due undoubtedly to uræmia. Consequently brachycardia is much more common in acute than in chronic nephritis. In diseases of the bladder it is probably produced by some reflex action, as by an irritation of the sensory nerves.

6. *Brachycardia resulting from intoxications.* In addition to the uræmic, Riegel has observed 3 cases resulting from poisoning by lead and 5 from that by alcohol. Instances of both these conditions have been reported by others, and are quoted by him. The brachycardia after digitalis and similar drugs is to be classed here, as is that from the use of strong coffee or tobacco.

7. *Brachycardia in diseases of the blood, and in general disturbances of nutrition.* 31 cases observed by him are included in this group. It has been described in diabetes, though it is uncertain how far the disease was etiologically connected with the retardation. Diabetes insipidus and brachycardia may be associated, both being due presumably to irritation of the vagus. Anæmia and chlorosis too frequently are accompanied by brachycardia to allow of the supposition that the association is merely accidental.

8. *Brachycardia in diseases of the nervous system.* Riegel has himself observed 93 cases, and numerous instances are reported in the literature. Its occurrence in diseases of the brain has long been known, as in concussion, apoplexy, meningitis, second stage of epilepsy, cerebral tumors, cerebral anæmia, anything causing an irritation of the vagus centre, etc. As regards disease of the spinal cord, it has long been understood that injuries of the cervical cord, as in fracture of the vertebræ, may produce retardation of the pulse. The association of retardation of the pulse with epilepsy or other spasm has also been noted. He quotes at length many instances of the connection of retardation of the pulse with the condition of the central nervous system, and discusses the nature of the connection.

In certain psychoses brachycardia has been observed, as in mania, melancholia, general paresis. It has been seen in mental depression. Numerous cases are reported and here referred to in which brachycardia was the result of direct irritation of the vagus, abscess, or pressure.

The author's own cases were divided among quite a variety of nervous diseases. Quite a number were instances of neuralgia, and the retardation is to be accounted for by the irritation of sensory nerves. There were beside 10 cases of neurasthenia or hysteria, with slowing of the pulse, and 8 cases of epilepsy.

9. *Brachycardia in other affections.* The author has observed 17 instances of pulse-retardation in exhaustion, 1 in sunstroke, 12 in diseases of the skin, 17 in painful affections of the muscles, and others in diseases of the sexual system.

In summing up the results of his studies, he says that brachycardia is much the most frequent in convalescence from acute fevers; then in diseases of the digestive system, and then in those of the circulatory, respiratory, and nervous systems. The cause and indication are very different in different

cases. After acute fever it is, to a certain extent, a normal occurrence, and in the puerperium is purely physiological, while in diseases of the heart and brain it is an ominous symptom. As to its etiology, it is sometimes a reflex phenomenon from different peripheral paths, sometimes a direct cerebral focal symptom. Its cause is sometimes a diminished excitability or a paralysis of the cardiac ganglia, the accelerator nerves, or vaso-motor system; sometimes an irritation of the vagus; sometimes a weakness or degeneration of the heart muscle; sometimes direct disorders of the coronary arteries.

Only by observation of all the other symptoms can the diagnostic and prognostic indications of brachycardia be determined in any given case.

A bibliography containing 161 references closes this very valuable paper.

Peru Balsam and Nephritis.

Braeutigam and Nowack (*Centralblatt f. klin. Med.*, 1890, No. 7) refer to the well-known danger of nephritis following the use of such balsams as copaiba and styrax, but say that only two modern authors, Litten and Vamossy, have recorded cases in which Peru balsam produced such a condition. The first reported the case of a painter suffering from lead colic, and from scabies, who passed blood, epithelium, and casts in his urine after each inunction with the medicine. In the four cases of the second writer, irritation of the kidney, with albuminuria and dark-colored urine, followed the employment of Peru-balsam gauze.

In order to settle the point to their own satisfaction, the authors examined systematically the action of the balsam on the kidneys in twenty-two cases of different diseases, testing daily in each the color, odor, specific gravity, quantity, reaction, presence of albumin, and microscopical appearance of the urine. They indicate the results in tabular form. The balsam was given by the mouth, subcutaneously, and by hypodermic injection. The largest dose employed was 170 grains in one day. That the balsam was actually absorbed was proved by the strongly acid reaction of the urine, due probably to an increased amount of hippuric acid. Their results contradict entirely the statements of Nothnagel and Rossbach, that the drug given internally in large doses produces gastro-intestinal catarrh and acts as an irritant to all mucous membranes. In no instance did they observe any disturbance of the stomach or bowels, nor any brown coloration of the urine, albuminuria, nor abnormality in the amount of urine secreted.

It is clear that Peru balsam is not to be compared with copaiba and styrax in its action on mucous membranes and on the kidneys. This is probably due to the absence in it of ethereal oils. It is possible that the renal irritation witnessed in Vamossy's and Litten's cases was due to adulteration with ethereal oil. It is, therefore, very important to secure the purity of the preparation.

SURGERY.

UNDER THE CHARGE OF

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Extra-dural Hemorrhage of the Temporal Region.

In an interesting and valuable paper on the treatment of certain cranial and spinal injuries, Dr. Lewis S. Pilcher (*The Annals of Surgery*, March, 1890) makes the following observations as to the course of operative procedure in cases of extra-dural hæmatoma of the temporal region: Krönlein's recent memoir on this subject, based upon the study of 280 cases, gives much valuable data upon this point. Krönlein describes four varieties of hæmatomata, arising from rupture of the middle meningeal artery, divisible into two general groups. The first group, diffuse hæmatomata, may extend as an even layer over the inner surface of an entire half of the skull; the second group, by far the most numerous, are circumscribed and lenticular in form, and are capable of subdivision by location into fronto-temporal, parieto-temporal, and parieto-occipital, according to the portions of the cerebrum which they compress. The most frequent forms are the parieto-temporal, situated over the middle cerebral convexity, bounded in front by the edge of the lesser wing of the sphenoid, posteriorly by the free margin of the petrous portion of the temporal, and extending from the region of the foramen spinosum below and upward a variable distance toward the vertex. It is possible that a given case may present localizing symptoms sufficient to indicate to the surgeon the variety of hæmatoma with which he has to deal, from the cortical areas shown to be affected. In such cases the point at which the trephine shall be applied is indicated with considerable accuracy, but in those far more frequently occurring cases in which by reason of complications involving other areas of the brain the localizing symptoms are confused, or by reason of the wide extent and mass of the compressing clot they are held in abeyance, the problem is less simple, and the surgeon must be guided by general principles in his attack. A perforation made in the temporal region, through the anterior inferior angle of the parietal bone, gives access, as Krönlein points out, to the areas of the diffuse, the temporo-parietal, and the fronto-temporal hæmatomata, and is, therefore, the point of election for exploratory perforation in all doubtful cases. The location of this point is easily effected. It is from one and a quarter to one and a half inches behind the external angular process of the frontal bone, on a line drawn backward from the superior margin of the orbit to the entrance to the external auditory meatus. If this first perforation prove fruitless, a parieto-occipital hæmatoma is to be sought for by a second trephine perforation, made in the region of the posterior branches of the middle meningeal artery. The most favorable point for this second perforation is on the same line as the first, prolonged backward, at its intersection with a vertical line carried upward directly behind

the mastoid process. A second opening of this sort is advised by Krönlein to be made in case of diffuse hæmatoma to permit the more thorough removal of the coagula, and to insure complete drainage.

Dr. Pilcher knows of no instance, as yet, where this recommendation has been carried out in practice, but its reasonableness and necessity in certain cases must command the assent of surgeons.

The Surgical Treatment of Movable Kidney.

Dr. A. J. McCosh reports (*N. Y. Medical Journal*, March 15, 1890) four cases of nephrorrhaphy, and makes the following remarks in regard to the operation: Nephrorrhaphy may often have failed to effect a cure. That such failure has resulted in a considerable number of cases is not denied. The operation has, however, effected a cure in many patients and has ameliorated the sufferings of others. The operation is a comparatively safe one. The mortality is not over two per cent. Is the patient to be deprived of this chance for cure simply because certain surgeons are sceptical as to the beneficial results of suturing the kidney to the loin? Or is the misplaced organ to be extirpated by an operation the mortality of which is twenty-five per cent.? It seems that there should be only one answer to these questions, as there is ample proof that in very many cases nephrorrhaphy had been followed by most satisfactory results. The cases reported where permanent relief from suffering has resulted in patients who have been under many years' observation by careful observers, are now too numerous to be attributed to enthusiasm on the part of the surgeon or patient, or to any mental result produced by operation. While the condition of some patients who suffer from a dislocated kidney is serious enough to warrant an attempt at cure by nephrorrhaphy, in how many is it sufficiently grave to warrant extirpation of that organ? (In thirty-six nephrectomies, collected by Lindner, for movable kidney, nine died from the effects of the operation, equal to twenty-five per cent.) He considers that there is no warrant for this latter operation until every other means has been tried and failed, and then only in the most desperate cases. An attempt should certainly first be made to fasten the kidney by means of suture. Should this attempt fail, it will be a question whether nephrorrhaphy should not again be tried. Numerous cases have been reported where a second nephorrhaphy has resulted in cure, and where failure has twice occurred, a third trial has been successful in more than one patient.

In an endeavor to collect all the cases of nephrorrhaphy which have been reported, Dr. McCosh succeeded in finding a record of 117 such operations. A detailed account, however, is given of only 87 patients. The excellent pamphlet by Lindner and the recent able article by Frank, have been of much service in this work. Many of the reports have been made at the expiration of a few weeks from the time of operation, and, as a patient ought not to be considered as permanently cured until a year at least has elapsed, it is impossible to draw any definite conclusions as to the relative proportion of successes and failures. Out of 56 nephrorrhaphies collected by Frank, 21 patients had been under observation for a year or more. The result in 11 of these was permanent cure, in 4 decided improvement, and in 6 failure.

Out of 11 cases where the sutures passed through the parenchyma of the kidney, 9 were cured. Morris claims 7 successes out of ten. In the 117 cases recorded below, 3 deaths have occurred. One of these, however, cannot be attributed to the operation, as an ileus, supposed to be due to a floating kidney, existed before operation and was unrelieved. The fatal result in another patient can only in part be attributed to the nephrorrhaphy; a pleurisy followed, due to attachment of sutures to the twelfth rib, but it was complicated by a fatty heart and atheromatous arteries. In the third case septicæmia resulted from passage of a suture through an old embolic infarction in the kidney. Of the 87 detailed cases, 32 patients had been under observation for one year or longer; in 15 of these radical cure resulted, in 4 decided improvement, and in 13 failure. As has been stated, it is not just to compare these figures with the total number of cases, for in a large proportion the permanent result is unknown. Relapses generally occur within the first few weeks after operation, and, therefore, it is reasonable to suppose that the majority of patients who are well at the end, say, of three months, will be permanently cured. A comparison of the results at this period ought to be of some value. There are 62 patients whose condition at the expiration of three months is stated. In 32 a cure had been effected, in 14 decided improvement had resulted, and in 13 no benefit had been derived from the operation. In 29 of these cases the sutures had been passed through the parenchyma of the kidney, with the result that 20 were cured, 5 improved, and 4 unimproved. In 22 of the same cases the capsule alone was sutured, and the result was 9 cured, 7 improved, and 6 unimproved.

Retention of Urine.

Mr. Buckston Browne, after reviewing (*British Medical Journal*, March 15, 1890) some points in connection with catheterism and other operative procedures in cases of retention of urine, concludes as follows:

Taking into consideration, therefore, our present knowledge, it appears that when a catheter patient has got into such a state that the frequent use of the instrument renders life burdensome, the bladder should be opened above the pubes. By this means the organ can be completely explored, any calculus extracted, the bladder drained and rested afterward. If any intravesical prostatic tumor is found, much must depend upon its size. If very large, it is probably a source of great irritation as well as of urinary obstruction, and it had better be removed. When, however, the growth is small, and especially when a stone has expectedly or unexpectedly been found, which may have been the cause of all the vesical misery, I should advise any one to hesitate before opening the prostatic capsule and enucleating the lobes. Also, when an elderly man, who leads a tolerably comfortable life, by passing his catheter even as often as every three hours, but who is anxious to be relieved altogether of his offending prostate, applies to the surgeon, I should still advise him to hesitate. Prostatectomy is a dangerous operation, only necessary in men already broken in health, and uncertain, even in cases of recovery, of being followed by release from the need of using the catheter.

THE TREATMENT OF FRACTURE OF THE PATELLA WITHOUT OPERATION.

DR. WILLIAM T. BULL (*The Medical Record*, March 22, 1890) details the results in twenty-two cases of fracture of the patella by a plan of treatment which he fully describes and which consists in the use of plaster-of-Paris bandages after the effusion has subsided, with the application beneath the splint of adhesive plaster strips to steady the fragments. If the patient has been seen immediately after the accident, ice-bags or cold water compresses have been applied to the knee, after a posterior splint of wood, felt, or pasteboard (and in hospital always of tin or iron, the Volkmann's splint with footboard) has been fitted to the limb. If seen several hours after injury, the use of cold or evaporating lotions has been discarded, and equable compression of the joint, with cotton compresses and snug bandages has been relied on, to promote absorption of the effusion; the limb has been slightly elevated on pillows.

The diminution in swelling has permitted the approximation of fragments after periods varying from two days to two weeks; on the average about the fourth or fifth day. When the gypsum bandage is applied, the limb has been elevated and the upper fragment has been drawn down and held by the loop of plaster, the centre of which rests above it on a pad of lint or gauze, while the ends pass obliquely downward to the upper part of the calf and the posterior surface of the leg. The lower fragment is similarly supported. It is possible to tilt the fragments by this manœuvre and so separate their upper margins. Their position should be noted and the first turns of the muslin or flannel bandage, which protects the skin from the gypsum, should be passed circularly about the centre of the knee to counteract this tendency to tilt.

Dr. Bull believes the plaster strips are not necessary, and that one could accomplish quite as much by simply using the figure-of-eight turns of a bandage. After the tendency to effusion has subsided, there is no tendency to drawing up of the fragments. The patient sits up after the gypsum splint is dry; if there be much shrinkage of the limb and the splint gets loose, it may be renewed.

After six or eight weeks it has been removed, and its posterior half or another hard splint of leather is applied and the patient allowed to walk. They have sometimes been allowed to walk with crutches after the fifth week; and it has seemed an advantage to have the first efforts at walking made a few days before the gypsum splint has been removed. For the next month or six weeks the posterior splint has been always worn by day; the thigh and knee vigorously shampooed and kneaded; but care has been taken not to make motion to flex the joint and thereby stretch the ligament. Electricity may be used if there is much atrophy of the thigh. At this period (end of three months) patients have usually been able to bend the limb but slightly —say not quite to forty-five degrees from the straight position—but the power of extension has been good.

Occasionally, in weak or nervous patients, the splint has been used for an additional month—making the period of enforced stiffness four months. From this point the treatment has been merely the exercise of care to avoid acci-

dent and by gradually increasing the work of the limb, to permit the functions to be restored.

The patients have generally used a cane during all this period, partly to remind them to be careful and partly to aid them in case of misstep; and have suggested the occasional use of a short splint behind the knee when any extra exertion was to be made; but the use of any kind of bandages or knee-caps after this period has been discouraged, and their application permitted, as in the case of the splint, only at odd times as a "reminder."

It has been often necessary to urge patients not to favor the injured knee in the ordinary use of it. Passive motion is unadvisable. In one of the reported cases it produced a refracture, and it would be an exceptional case in which it would be indicated.

The treatment after this manner lasts about six months, but involves a period of rest and confinement for only six weeks. A second period of six weeks can be spent in any kind of occupation or amusement that can be carried on with a knee stiffened with a ham-splint. During the following three months much care must be exercised to prevent accidents, and this may entail loss of time or money in the case of those who pursue arduous occupations.

Dr. Bull does not think that the period of treatment can be advantageously shortened; and he feels confident that the number of good results in his cases would have been larger if all the patients had been advised at frequent intervals during the six months' treatment. He does not overlook the fact that the result might be better. Between the sixth and the ninth month the patient should be steadily gaining. If there be a marked atrophy of the thigh without much separation of the fragments, the development of the quadriceps should be stimulated to the utmost. If the ligament and joint functions begin to weaken he would advise wiring the bone; if done at this period, the operation would be easier than when, at a later time, the fragments are wider apart. For stiffness he should hesitate to interfere. Better a strong and stiff joint than a weak and limber one. It would be rare to find a case which could not be flexed enough to keep the foot out of the way in sitting down. But if such stiffness existed with impaired extension, he would break up the adhesions first and afterward wire the fragments. The treatment of rupture of ligamentous union should be a conservative one until it is apparent that the result is to be unsatisfactory, when it may be wired.

As to the practice of uniformly wiring the patella, Dr. Bull thinks that it is sufficient to condemn it, that its advocates admit that its "success depends upon carrying out the smallest detail, and that it never should be undertaken by an ordinary practitioner." He adds: "But it is furthermore of interest to know that when its results are compared with those of the conservative treatment, all the cases being in one hospital, the judgment of an experienced surgeon is against it. It is not necessary to go into details. I will merely quote the conclusion of Brunner, after narrating the experience of the Zurich clinic for twenty-three years:

"'The previously adopted bloodless methods are appropriate, and the suture by operation of a fresh fracture of the patella is only justifiable when it is compound.'"

OTOLOGY.

UNDER THE CHARGE OF

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The Most Frequent Diseases of the Ear in Influenza.

Dr. Haug, of Munich, has written a valuable article on this subject, basing his statements on observations made upon the characteristics of the epidemic in Munich (*Münchener med. Wochenschrift*, February 25, 1890). Between December 25, 1889, and February 1, 1890, he observed personally eighty cases of ear disease directly traceable to influenza. These were nearly all connected with catarrhal affections of the respiratory tract, very few ear diseases being observed in cases of influenza of a nervous type.

The cases observed by Haug are divisible into three groups. *First*, that form of ear disease often seen in connection with ordinary sore throat and simple acute catarrhs. The hearing is often little or not at all affected, and there is very little earache. There is often a complaint of a sensation of fulness in the ear and an altered subjective hearing of the patient's own voice (autophony). In about half of these cases recovery ensues with proper prophylactic and therapeutic measures in from ten to twelve days. In other instances the swelling and hyperæmia of the drum cavity and membrana tympani increase, and exudation occurring the case passes into the *second* group. The disease now assumes a more serious nature. The pain in the ear becomes more constant and intense, and spreads out over the side of the head. The hearing grows worse, the pulse becomes quicker, and the temperature increases. The pulsating tinnitus now becomes intense and distressing. The membrana tympani becomes uniformly and intensely congested, passing from bright red to a bluish-red color, and all its outlines are lost. Together with such exudations in the membrana, effusion occurs in the tympanic cavity. In the course of from three to five days spontaneous rupture takes place, usually in the lower half of the drum membrane. This perforation is often very small at first, but as soon as it occurs the patient gains relief from pain in the ear. In this we find all the characteristic symptoms of an otitis in an infectious disease. The disease, which is now an influenza catarrh of the middle ear, runs its course with copious muco-purulent discharge, and with proper treatment will end in recovery in from three to five weeks. It may occur in from five to eleven days.

The most interesting form is the *third*, which is also the rarest, and Haug claims to have been the first to point it out, viz., the *hemorrhagic*. This seems to represent the special influenza-type of ear-disease. The patients thus affected are of those who have been suffering from the most pronounced symptoms of an acute catarrh of the respiratory tract, but who have not complained at all of their ears. Suddenly, after the fever of the general infectious disorder has subsided, the patient complains, often in the evening or at night, of intense boring pain in the depth of the ear which at last reaches the

highest intensity of any aural inflammation. The fever returns and increases; in the course of six hours the patient becomes intensely deaf. The membrana tympani will now be found, in nearly all its surface, to be of a dark bluish-red or blackish-blue color, and convex outwardly. All its contours are lost and an iridescent tint may appear on the most prominent points. In two instances the hemorrhagic process was limited to the membrana tympani without any participation of the drum-cavity.

The entire eighty cases of influenza-otitis were divided as follows: twenty-six cases of intense hyperæmia and swelling, of which six were ambilateral; thirty-seven cases manifested perforation of the membrana with muco-purulent discharge, of which five were ambilateral; the purely hemorrhagic were seventeen in number, of which two were ambilateral.

The treatment consisted in inflation of the tympana, gargles, inhalations, insufflations, with the administration of antipyrin, phenacetin, and quinine, in the simplest forms.

In the exudative form, when the pain was severe, local bloodletting in the temporal region, ice bags behind the ear, or about the ear, and in some cases a light coat of iodine on the mastoid region. In a later stage, if paracentesis could not be performed, hourly applications of some warm instillation in the external auditory canal proved of value. If pain increased and the temperature rose, and secretion was detected in the middle ear, with pain and sensitiveness in the mastoid, paracentesis proved to be the best means of relief. After paracentesis, inflation of the ear was carried out, and the canal syringed with an antiseptic solution. Then, after complete drying of the canal, narrow strips of sublimate gauze were carried down the canal as far as the opening in the membrana tympani. If, subsequently, the ear became filled with secretion, mopping with absorbent cotton was preferred to syringing. Powder insufflations are not advisable in these acute perforative cases, because of the liability of the formation of obstructive lumps of powder and pus mixed together. When the secretion is thin the simple boric acid powder, with or without an astringent admixture, acts very well. Five-sixths of the suppurative cases were adults. So many purulent cases are usually seen only in children during an epidemic of an infectious disease.

Five Cases of Otitis Media Suppurativa following Grippe; Opening the Mastoid.

Dr. H. R. Chatelier, of Paris, communicates the facts relating to the above-named cases (*Annales des Maladies de l'Oreille*, etc., March, 1890).

The first case, being the victim of grippe in the beginning of November, 1889, suffered from otitis media suppurativa, in the right ear, which healed soon. A relapse occurred on the 22d of November, accompanied by intense pain in the mastoid. Purulent infection ensued, and the mastoid was opened. Recovery took place December 19th.

The second case was attacked early in January, 1890, with grippe, and almost immediately there ensued an acute otitis media suppurativa. The mastoid became painful in the course of a week. The operation was deferred at the patient's request until January 21st, when it was performed. Recovery ensued in twenty-five days.

The third and fourth cases ran a similar course.

The fifth case was that of a child five years old. The patient was attacked with grippe, then with acute purulent otitis media with facial paralysis in January. Early in February the mastoid was opened—*i. e.*, the cortical portion was trephined, but at this age no true mastoid cavity exists. The abscess cavity was scraped out, and antiseptic dressings applied.

Lympho-cartilaginous Syphiloma of the Auricle.

L. Julien, Surgeon in the Saint Lazaire Hospital at Lyons, France, has given the above name to a tumefaction he observed in the *fossa helicis*, at the upper part of the auricle of a young man. The tumor was slightly red and sensitive, it had developed rapidly three months after the initial venereal sore, coincident with cerebral troubles, and it disappeared, leaving in its place an induration without the usual transparent skin of the auricle. Julien supposed that in this instance not only the perichondrium had been involved, but also the rich network of lymphatics found in this region, and hence the name proposed for the new growth.—*Lyon Médical* and *Annales des Maladies de l'Oreille*, January, 1890.

Epithelioma of the Auricle.

Heurtaux presented to the Anatomical Society of Nantes, March 13, 1889, a case of epithelioma of the auricle, in which the growth had become adherent to the wall of the auditory canal, and in which scraping the growth away had been required. The growth had also involved the parotid gland, a part of which had to be removed in consequence.—*Annales des Maladies de l'Oreille*, January, 1890.

Dangerous Hemorrhage following Paracentesis of the Membrana Tympani, due to Wounding the Bulb of the Jugular Vein.

The danger of wounding the jugular vein, in any case where it projected through a dehiscence in the floor of the tympanic cavity, was first pointed out by von Troeltsch. Dr. Ludewig narrates a case in illustration of this which occurred in the ear clinic at Halle.

A boy, five years old, was brought to the clinic with chronic aural catarrh of both ears. On the right side serous secretion was detected, in consequence of adenoid growths in the nasopharynx. Ten days after removal of the latter, paracentesis of the right membrana tympani was performed for the removal of exudation from the drum-cavity. There was observed at that time a bluish color in the posterior and inferior quadrant, while in front the limit of the exudation was visible as a yellowish line. This bluish color was not further noted, though the sequel showed that it ought to have received more consideration.

At the first incision into the membrana, which was not sufficiently large, on account of movement on the child's part, clear yellow serous fluid escaped from the drum-cavity. The dilatation of the cut was made, contrary to the rule of the clinic, by means of the paracentesis knife instead of with a probe-pointed knife. As soon as the knife had cut down to the lower border of the

membrana a stream of dark blood gushed from the ear, so that before a tampon could be inserted the child lost about thirty-two ounces of blood. It was now feared that the blood would find its way through the Eustachian tube into the throat, and probably end in death. But none of these fears were realized, as the tamponade and firm bandage quelled the hemorrhage completely and permanently, and the wound in the vein, as well as that in the membrana tympani, healed by first intention, and the bandages were removed on the eighth day. The child was kept under observation a month, and then dismissed cured, and has remained well, with nearly normal hearing ever since.—*Archiv für Ohrenheilkunde*, Jan. 1890.

Acute Otitis in a Leper.

Wagner reports the above-named case, which was observed in the service of Prof. Leloir, of Lille. (*Annales der Dermatologie, etc*, 1889.) Both ears in this case were the seat of a disease characterized by crusts in the external canals, lying upon an infiltrated and red base. The membrana tympani of one side was in the same condition, and also perforated, with pus in the drum-cavity. Under proper treatment of both ears the tinnitus and pain vanished, and the auditory troubles disappeared entirely. The nose showed symptoms of atrophic rhinitis. In the larynx, epiglottis, and vocal cords there were infiltrations and small grayish tumors. It is worthy of note that a cure of the middle ear was accomplished, notwithstanding the morbid condition of the subject. This is in harmony with Leloir's observation that lesions of a traumatic or inflammatory origin cicatrize easily in the leprous.—*Annales des Maladies de l'Oreille*, January, 1890.

Incomplete Unilateral Deafness following Mumps.

Moure reports two cases of incomplete unilateral deafness following mumps (*Annales de la Polyclinic de Bordeaux*, January, 1889). In one case the lesion appeared to be in the conducting apparatus, and the author believed, as the membrana revealed nothing abnormal, that there had been an exudation into the tympanic cavity, resulting in interference with the action of the fenestræ; hence the explanation of the irremediability of the deafness.—*Annales des Maladies de l'Oreille*, January, 1890.

Chronic Purulent Otitis Media in Drunkards.

Noquet has made a number of observations upon the above-named subject (*Revue de Laryngologie*, Nos. 1 and 2, 1889). The result of the study shows that the evolution of such otitides is rapid, that the nerve centres are simultaneously invaded, and the extent of the disorders, under the influence of alcohol, is great. Alcohol in this form of otitis has a deplorable influence on the course of the disease, as it has in all other maladies.

Hereditary Deafness.

Under this title, Boucheron warns those with an hereditary tendency to deafness to take special care to have chronic affections of the throat and naso-

pharynx attended to promptly, and also to pay attention to the nares in all cases of disease (*Bulletin Médical*, December 5, 1888). In the course of his paper, Boucheron urges the mobilization of the stapes when other treatment has failed to improve the case, in order to avoid destruction of the auditory nerve (from want of use).—*Annales des Maladies de l'Oreille*, January, 1890.

A Rare Case of Auditory Reflexes.

Steinbrugge, of Giessen, has observed some curious phenomena, called hysterical, in a man, forty-five years old (*Archives of Otology*, Nos. 3 and 4, 1889). "After a sensation of cold, passing from the knees to the stomach, or after a general rigor, the patient began to make some long inspirations; then suddenly the breathing would become shorter and more rapid, until it reached sixty in a quarter of a minute [*sic*]. Then succeeded a period of apnœa, followed by deep and irregular respirations. The same series of phenomena was repeated in the course of a few minutes, causing attacks lasting from five to ten minutes, during which the patient retained consciousness and the ability to do what he was told to do, but he could not speak. After the attack he gaped some. The most interesting point was the fact that these attacks were excited by musical sounds, and not by noises." Thus, Steinbrügge brought on the attacks by placing a vibrating tuning-fork on the patient's forehead. The ears presented the appearance of sclerosis of the tympanic cavity. The hearing was reduced. After suffering fifteen years from these attacks the patient was suddenly cured, after a *séance* of hypnotism conducted by an assistant of Prof. Riegel, and have not reappeared. Steinbrügge endeavors to show that the excitation passing by the way of the nucleus of the acoustic nerve is propagated to the pneumogastric and the hypoglossal, so as to produce the disturbances in respiration and speech. But in what way? This case is considered as showing that musical sounds are heard by the cochlea, and noises by the nerves in the vestibule. It may also be supposed that the centripetal course of musical sounds passes through the principal nucleus of the acoustic nerve, and that the centripetal course of noises reaches the lateral nucleus by passing through a portion of the anterior root of the nerve. —*Annales des Maladies de l'Oreille*, February, 1890.

OBSTETRICS.

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,

PROFESSOR OF OBSTETRICS AND DISEASES OF CHILDREN IN THE PHILADELPHIA POLYCLINIC; VISITING OBSTETRICIAN TO THE PHILADELPHIA HOSPITAL.

A New Forceps.

Borjakowski (*Centralblatt für Gynäkologie*, No. 2, 1890) describes a new forceps which he has constructed, which lacks a pelvic curve. In place of the ordinary lock, the right blade of the forceps fits upon the left, and a pro-

jecting point of metal upon the upper blade fits into a notch in the lower blade; room is made for this notch by making a shoulder upon the forceps at this point and by hollowing out the shoulder; the hands are placed upon the forceps between pronation and supination, compression is made by the first and second fingers of the right hand only. It is claimed for this forceps that it locks easily; that it affords a convenient application of the hands; that it is light and easily carried about, and that injurious compression of the head is not produced by this instrument.

The Use of the Obstetric Binder.

Herman, at a recent meeting of the Obstetrical Society of London (*British Medical Journal*, March 15, 1890), had measured the diminution in the size of the chest and abdomen during the lying-in period of patients who wore a binder as usually applied, in those who had none, and those in whom the binder was especially tightened; he found the diminution in size in the lower part of the chest was practically the same in each case, and concluded that the ordinary binder had no effect upon the waist measure of the patient, although he had no doubt that it might cause deformity of the chest; the only use for the ordinary binder was to give comfort to the patient.

In discussion Gervis believed that the binder put on after labor, and tightened from time to time, promoted uterine contraction, and lessened the tendency to hemorrhage.

Champneys thought that the non-use of the binder led occasionally to pendulous abdomen, and its results; the binder should not be used so high as to compress the hypochondria.

Braxton Hicks believed that the base of the thorax was expanded by the pregnant uterus. He thought a slight bandage about the lower portion of the thorax beneficial in preventing hemorrhage, and favoring the contraction of the parts.

Abortion Caused by Cardiac Insufficiency.

Handfield-Jones (*British Medical Journal*, March 15, 1890) describes three cases of cardiac insufficiency in which temporary increase in the trouble resulted in abortion. The ova in these cases were dotted with small hemorrhages occurring between the wall of the uterus and the membranes; in a few instances large clots were found, but usually the hemorrhages were small; the theory of abortion in these cases is, that the failing activity of the heart resulted in congestion followed by rupture of the capillaries and extravasations of blood, and by the separation and expulsion of the ovum. Such patients should be put in circumstances where no severe exertion is undertaken, and should be given heart tonics and general treatment during pregnancy. With these precautions, abortion will generally be prevented.

Painless Parturition.

Fanton (*Archiv de Tocologie*, No. 2, 1890) reports twelve cases of labor in which birth occurred while the patient was hypnotized. In none of these cases was the patient aware of the birth of the child, nor was there complaint

of pain. An obstinate case of ptyalism during pregnancy, which had resisted every method of treatment, resisted also hypnotism. In some cases it is impossible to hypnotize the patient if the effort is not made at the very beginning of labor, before strong uterine contractions have occurred. On waking after her labor one patient said that the sensation must have resembled that of intoxication.

A Case of Non-putrid Physometra during Labor Terminated by Embryotomy.

Gallois (*Archiv de Tocologie*, No. 2, 1890) reports the case of a woman in her second labor, in whom forceps had twice been applied without success. The formation of a large quantity of gas in the uterus occurred, necessitating the completion of labor. Tarnier's forceps failing, the cephalotribe was also tried, and finally brought the head, with much difficulty, to the vulva. Rotation of the shoulders failing, it was necessary to perform embryotomy, and deliver the child's body, although with great difficulty. The sudden death of the patient occurred shortly afterward.

A remarkable feature of the case was the persistence of the fœtal heart sounds until five hours before the cessation of labor. It is thought that an acute infection of the fœtus occurred analogous to gangrene, and that, owing to that, gas accumulated in the uterus.

A Case of Osteomalacia; Amputation of the Uterus; Recovery.

Zweifel (*Centralblatt für Gynäkologie*, No. 2, 1890) reports a case of highly contracted pelvis, caused by osteomalacia. The patient was at full time, the child dead, and in transverse presentation. As symptoms of constitutional infection from sepsis were present, amputation of the uterus was performed, the peritoneum stitched over the stump, and the stump dropped into the abdomen.

Recovery ensued, complicated by phlegmonous inflammation of the abdominal wall about the incision. Zweifel regards uterine amputation as the only adequate method of dealing with these cases.

Fehling (*Ibid.*, No. 5, 1890) has removed the ovaries eight times for the cure of osteomalacia. In only two cases had labor taken place less than six months before the operation; the average time between labor and the operation was four and one-half years. In most cases temporary improvement followed, which was succeeded by a relapse. The utility of this method is yet to be proved.

Pregnancy and Labor complicated by Flat Pelvis, Eclampsia, and Dermoid Cyst of the Ovary.

Donat (*Centralblatt für Gynäkologie*, No. 8, 1890) reports a case of pregnancy at term in a flat pelvis, second vertex presentation; eclampsia was present, and the child's life was threatened by uterine trismus. On examination, an elastic tumor was found filling the pelvis, and it was decided to puncture and evacuate the cyst, and deliver the child by perforation and the cranioclast. The cyst was found to be dermoid, and contained three-quarters

of a quart of yellow, oily fluid. The child was easily extracted after perforation, and the placenta followed half an hour later. On examination, a laceration of the cervix was found upon the left side, which did not bleed. The patient developed septic infection, and died with peritonitis and pleuritis. A dermoid cyst of the left ovary was found post-mortem.

The uterine trismus was relieved by injections of morphine and the use of anæsthetics.

It is a question as to whether a better course of treatment would not have been abdominal section, free emptying of the cyst, stitching its wall to the abdominal incision, and delivering the child by the method employed, or by uterine amputation.

Carcinoma of the Rectum; Induced Labor; an Epidemic of Septic Infection.

Lohlein (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xvii. 1) reports the case of a multipara, seven months pregnant, in whom pregnancy was complicated by carcinoma of the rectum so large as to make delivery at term impossible. Labor was induced, and a living child was born spontaneously. The mother was subsequently transferred to a surgical ward, where a radical operation was performed, from which she recovered, and was discharged greatly improved. Her child perished ten days after birth, of exhaustion, caused by erysipelatous infection of the umbilicus and adjacent parts.

Shortly afterward a second child in the clinic was taken with similar infection and perished, with the same pathological appearances upon examination.

A mother attended by some of the nurses who cared for these children became infected by puerperal sepsis, and suffered from septic peritonitis and puerperal diphtheria. Under vigorous stimulation with alcohol the patient recovered. The interest attached to these cases lies in the indication for abortion and premature labor furnished by carcinoma of the rectum, and the remarkable recovery of the patient after infection of the peritoneum by sepsis.

Total Extirpation of the Uterus for Retained and Decomposed Placenta.

Roosenburg (*Nederl. Tijdscho V. Geneeskunde*, No. 21, 1889) reports the case of a multipara with whom a midwife had difficulty in expelling the placenta; the uterus was subsequently curetted to stop hemorrhage; pregnancy occurred again, followed by abortion at the fourth month; the midwife in attendance attempted to remove the placenta, but the cord broke, leaving the placenta behind; septic infection occurred, and the patient was transferred to a hospital. On examination but two fingers could be inserted in the uterus; it was impossible to remove the fragment of placenta by the fingers or by the spoon forceps; peritonitis threatening, the uterus was extirpated through the vagina, and tampons of iodoform gauze and cotton dipped in iodoform glycerine were inserted; fourteen days afterward the patient was convalescent. On examining the uterus an offensively decomposed piece of placenta was found adherent to its wall. The patient subsequently made a perfect recovery.

Two Cases of Complete Inversion of the Uterus

Graham (*Lancet*, March 1, 1890) was recently called to a multipara in whom complete inversion occurred after precipitate labor. The patient had a roomy pelvis, the uterine ligaments were relaxed, and the placenta was firmly attached to the centre of the fundus; traction upon the cord had been made by a midwife; while attempting to remove the uterus, the patient collapsed and died.

Pooley (*Ibid.*) reports a case of inversion of the uterus following traction upon the cord, in which the placenta was readily separated and the uterus replaced. The placenta was firmly adherent, and traction upon the cord is the only cause mentioned for the accident. The patient made a good recovery.

Febrile Intermission in Puerperal Sepsis.

At a recent meeting of the Gynecological Society of Dresden, Grenser (*Centralblatt für Gynäkologie*, No. 11, 1890) reported the case of a primipara, whose labor was terminated at the expiration of forty hours by the forceps, a recently dead child being delivered; the membranes had ruptured early in labor, antiseptic precautions had been carefully observed; septic infection occurring, on the sixth day an exudate in the ileo-cæcal region was found; under the use of ice, baths, and packs, opium and quinine, a cessation of fever with partial disappearance of the exudate resulted for several days, followed by an exacerbation of temperature, with left-sided pleurisy and tedious recovery.

In discussion Leopold considered the utility of baths in treating puerperal sepsis as doubtful; he commonly employed ice, opium, and strict cleanliness, and alcohol; he rarely had occasion to employ baths in private cases.

Two Cases of Ectopic Gestation.

Herman reports at the London Hospital (*British Medical Journal*, March 15, 1890) a case of tubal gestation with rupture toward the end of the second month, intra-peritoneal hemorrhage, operation during collapse followed by recovery. A diagnosis before rupture was uncertain, the hypogastria being tender, a resisting mass felt as large as a tennis-ball, while, by internal examination, nothing was found, except pain when the uterus was moved. The patient was found on the street by the police in collapse and brought to the hospital; the mass had disappeared. Laparotomy disclosed the nature of the trouble.

He also describes a case of subperitoneo-pelvic gestation, death of the fœtus at three months; operation followed by cure. The patient was a primigravida, who had suffered from attacks of pain in the hypogastrium, with many signs of pregnancy; on examination the breasts contained milk, a rounded swelling was found two fingers' breadth below the umbilicus, the uterus was displaced forward, behind the cervix was an elastic swelling continuous with that in the abdomen. On laparotomy a sac was found under the pelvic peritoneum containing a macerated fœtus at three months; it was emptied, and stitched to the abdominal wall, and a drainage-tube inserted.

A Case of Cæsarean Section.

Sänger (*Centralblatt für Gynäkologie*, No. 1, 1890) reports the case of an old primipara with flat rhachitic pelvis, antero-posterior diameter three and one-third inches, the child living, with an abnormally large, hard head; labor persisting three days without the descent of the head into the pelvis; the os dilated as large as a half dollar; amniotic liquid escaped; threatened rupture of the lower uterine segment developed; temperature and pulse normal; the Cæsarean section was performed by Sänger, in accordance with his method so well known. The mother recovered after a normal lying-in period, and the child, an unusually well-developed boy, lived and thrived.

This is the seventh successful operation in succession by the conservative method advised by Sänger which he has done. He calls especial attention to the indications for the operation, which in the minds of some would not have justified Cæsarean section, but would have chosen craniotomy upon the living child. He does not regard Cæsarean section as a simple or easy operation, and denies that it can be successfully performed by those not familiar with the anatomy of the parts, and antiseptic surgery. He employs in these cases heavy silk for the uterine suture, which he places three-quarters of an inch from the edges of the incision, and he uses lighter silk for the abdominal wound. The patient received douches of carbolic acid during her recovery, and occasionally enemata were given for distention of the intestines.

Cæsarean Section for Rhachitis.

Cameron (*British Medical Journal*, March 15, 1890) reports the case of a primipara, aged eighteen years, who had rhachitis of high degree, the antero-posterior diameter of the pelvic inlet being one inch. The child was in breech presentation; the operation was performed as usual, hemorrhage being checked by compression of the hand, the rubber tube not being required; the child was extracted by the head, the placenta was attached to the posterior uterine wall, and easily removed; silk was used for sutures, and both Fallopian tubes were ligatured at the junction of the outer and middle thirds; the operation occupied forty-five minutes; the patient made a good recovery, being troubled somewhat from tympanites and restlessness. It was not necessary to turn the uterus out of the abdomen in order to open it. Cameron much prefers ligation of the Fallopian tubes as a mean of sterilization.

Cæsarean Section for Osteomalacic Pelvis.

McGowan (*British Medical Journal*, March 15, 1890) performed Cæsarean section upon a multipara greatly exhausted in labor, who had a markedly osteomalacic pelvis: the tuberosities of the ischia were less than three-quarters of an inch apart, and the pubic arch was almost obliterated; progressive deformity of the skeleton had existed for over a year. Her first labors had been easy, the pelvis eight years before having been found roomy. The operation was performed amid unfavorable surroundings. The patient died with peritonitis four days after the operation.

Cæsarean Section for Carcinoma of the Uterus.

Teuffel (*Archiv für Gynäkologie*, Band xxxvi. Heft 2) reports a case of Cæsarean section for carcinoma of the uterus in which the tumor was so large that the uterus could be emptied in no other manner. Sublimated silk was used for sutures, the uterine and abdominal walls being closed completely. The child was extracted living, but died fourteen days afterward. For the first two days after the operation the patient suffered severely from after-pains, which ceased after the free discharge of bloody serum. In the second week symptoms of rapid increase of the cancer occurred, and a cancerous mass was felt through the abdominal wall at the entrance to the pelvis. The stitches were removed on the ninth day, union having taken place by first intention. The patient went to her home on the fourteenth day. Her subsequent history was that of repeated severe hemorrhage, which caused her death twenty-one days after the operation. Post-mortem examination revealed extensive infiltration of the abdominal and pelvic tissues with carcinoma. The uterus was filled with a cloudy, watery fluid, and upon the anterior wall there was a fissure extending to the serosa. The peritoneum over the uterus had remained in apposition. The rupture in the uterine tissues had been caused by the accumulation of lochia, and also fluid derived from the cancer which had found no exit from the vagina. The practical point of interest in the case lies in the necessity for securing drainage in these cases through the vagina, and also in the safety afforded by perfect closure of the peritoneum.

Two Porro Operations.

Beaucamp (*Archiv für Gynäkologie*, Band xxxvi. Heft 2) believes that the Porro operation should not be restricted to severe infection of the uterus alone, but should be performed in preference to the Cæsarean section when any portion of the genital tract is already infected by sepsis; he would, furthermore, perform the Porro operation for carcinoma of the uterus, and also for osteomalacia.

He adds the report of a case of carcinoma of the uterus complicated by twin pregnancy, in which Porro's operation was performed. One twin was delivered alive, and survived; the other was stillborn. By stitching the stump carefully to the abdominal incision infection of the abdomen was prevented, and the patient recovered from the operation; she subsequently died of cancer, and post-mortem examination confirmed the diagnosis and justified the operation.

His second case was one of osteomalacia, in which special pains were taken to close the tissues about the stump, the purse-string suture being used for this purpose. The patient recovered from the operation, and her general condition was considerably improved.

Fibroma of the Uterus Complicating Pregnancy; Myomectomy; Recovery without Interruption of Pregnancy.

Routier (*Annales de Gynécologie*, March, 1890) reports a case of a woman, three months pregnant, in whom a large fibroid existed. Laparotomy revealed

a kidney-shaped tumor attached by its hilum to the fundus of the uterus, and with one extremity above the pubis, reaching beneath the diaphragm; the pedicle of the tumor was severed after the application of the elastic ligature, and was sutured; the mass was then removed, the pedicle brought together, the elastic ligature removed, and when the capsule of the tumor was sutured the uterus was replaced in the abdominal cavity; the mass measured ten inches in length, six in width, and six in thickness. The patient made an uninterrupted recovery, and pregnancy continued. Routier has collected fifteen cases, including his own, in which active interference for fibroid tumor of the uterus complicating pregnancy occurred; ten of these cases recovered, three of them aborting, seven going to term; five of the cases died.

Abdominal Gestation.

Chandelux (*Lyon Médical*, No. 2, 1890) performed laparotomy upon a patient fourteen months pregnant who had suffered from peritonitis after abortion. Fœtal death had occurred some time before operation and crepitation of the fœtal skull could be elicited. A macerated fœtus was found encysted in the abdomen, the right tube having ruptured. The cyst was sewed to the abdominal walls, and the placenta allowed to remain; the cavity was irrigated with boric acid 1 to 25, and tamponed with iodoform gauze. Six days after operation the greater part of the placenta was carefully detached by pressure with cotton soaked in bichloride of mercury 1 to 2000; the sac wall ruptured at one point and the intestines were visible. A free discharge of sanious pus continued, but under antiseptic irrigation complete cicatrization and recovery followed in twelve weeks.

GYNECOLOGY.

UNDER THE CHARGE OF

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The Etiology of Peritonitis.

Fränkel and Predöhl (*Münchener med. Wochenschrift*, 1890, No. 2) publish the results of their observations in the Hamburg General Hospital. In fifteen cases of purulent peritonitis Fränkel found microörganisms, the majority being the same variety of streptococcus, leading to the inference that the latter was the exciting cause of the inflammation, especially in rapidly fatal cases. When life was prolonged other forms were found in the exudate, which were probably derived from the intestine, and seemed either to destroy or so to weaken the vitality of the specific cocci that they could be cultivated with difficulty outside of the body. Cultures of the streptococci, when injected into rabbits' ears, produced an inflammation identical

with that which resulted from the injection of the cocci of erysipelas. The other bacteria have the property of decomposing albuminoids and setting free ptomaines, which preserve their virulence even after the bacteria have been destroyed by boiling. The writer accordingly agrees with Bumm in distinguishing two forms of purulent peritonitis, septic and putrid. When peritonitis was produced artificially in animals by the injection of liquor ferri and tincture of iodine the exudate was always serous, and contained no organisms, unless life was prolonged and the odor of the fluid became offensive, when there were found bacteria from the intestine as before. The practical conclusion was that not only should strict antiseptic precautions be observed in puerperal and laparotomy cases, but that early operative interference in cases of purulent peritonitis would greatly reduce the mortality.

Predöhl's observations led him to deny that the *streptococcus pyogenes* was peculiar to puerperal peritonitis, and that the peritonitis which follows laparotomy is due to the development of ptomaines, although the exudate contains, in the majority of cases, a specific microörganism.

Intra-uterine Applications.

Schrader (*Centralblatt für Gynäkologie*, April 12, 1890) thinks that cauterization of the endometrium with strong applications, especially sesquichloride of iron, is dangerous, chiefly because a coagulum or eschar is formed which may undergo decomposition and lead to septic infection. Curetting is less harmful; if the endometrium again hypertrophies a mild escharotic should be applied after curetting, but the resulting eschar should be at once scraped away. He prefers pure carbolic acid, which is applied on a feather.

Hemorrhage into the Uterus after Tamponing the Vagina.

Klotz (*Centralblatt für Gynäkologie*, April 12, 1890) reports two cases in which dangerous intra-uterine hemorrhage occurred in spite of a firm vaginal tampon. In the first case a healthy patient was three months pregnant and had flowed for four weeks, the os being closed. External hemorrhage was entirely checked by a tampon, but a few hours later she collapsed, and the uterus was found to be greatly distended; it was emptied, but death ensued in an hour. The second case was that of a woman who had profuse hemorrhage from a fibroid uterus. She was tamponed the night previous to a proposed laparotomy, but collapsed, and nearly succumbed. A large quantity of coagulum was removed from the uterine cavity, and the hemorrhage was checked with hot-water injections; she was saved only with great difficulty.

Intestinal Obstruction after Laparotomy and Vaginal Hysterectomy.

Klotz (*Centralblatt für Gynäkologie*, April 12, 1890) calls attention to the frequency of this complication in his practice, which resulted fatally in four out of eleven deaths following laparotomy (in 344 cases), and in one out of three following total extirpation of the uterus (in 112 cases). He had personally observed twenty-seven other cases of ileus. He thought that there had been less cases during the past year, which was probably due to prompt

evacuation of the bowels after operation, and to the less frequent irritation of the peritoneum by sponges and antiseptic solutions. He had never seen any harm follow early purgation. The injection of air into the bowel was strongly advised in cases of intestinal obstruction.

Intestinal Obstruction due to Parametritis.

Frickenhaus (*Frauenaerzt*, March, 1890) calls attention to the intestinal troubles, especially constipation, which often follow an attack of parametritis, although it is rare that complete obstruction results. He reports three cases from Saxinger's wards, and could find only four others in the literature. It is a significant fact that obstruction occurs more frequently in cases in which the exudation seems to be least extensive; and usually at a point just above the left sacro-iliac synchondrosis at the junction of the sigmoid flexure and rectum. The gut seems to be partially occluded by concentric adhesions, leading to disturbance of peristalsis and paralysis above the point of compression.

The Removal of Pelvic Tumors by Perineotomy.

Sanger (*Archiv für Gynäkologie*, Bd. xxxvii. Heft 1) limits this operation to growths originating in the pelvic connective tissue, especially the dermoid variety. He describes at length an operation for the removal of a dermoid cyst of the subperitoneal space. With the patient in the lithotomy-posture a three-inch incision was made, extending from the inner border of the right labium majus obliquely inward across the perineum to a point one inch behind the anus. The ischio-rectal fossa was opened, the levator ani muscle divided near its insertion, and lastly, the pelvic fascia was cut through. The edges of the wound being held apart with retractors, it was found to be a comparatively easy matter to shell out the cyst. The wound was thoroughly irrigated, packed with iodoform gauze, and closed with deep sutures. The gauze was replaced on the second day by a rubber drainage-tube, through which the cavity was washed out twice daily. Granulation proceeded so rapidly that the patient was discharged at the end of three weeks. Examination by the vagina and rectum showed that a gap remained in the right levator ani muscle, showing that there was no fresh attachment at the point of insertion.

The writer believes that subperitoneal dermoid cysts of this character are not so rare as might be supposed, since he had been able to collect eleven cases, which are tabulated. The method described may be extended to include the following cases: Tumors, foreign bodies, and hæmatomata of the ischio-rectal fossa and subperitoneal cavity; retro-cervical fibro-myomata; intra-ligamentous and retro-peritoneal ovarian and parovarian cysts; hæmatometra and hæmatocolpos (where the enlargement is lateral); retro-uterine hæmatocele and abscess, and of atresia vaginæ in which operative interference is necessary. Recto-vaginal fistulæ high up may also be reached in this way, as well as the supra-vaginal portion of the ureters. The special advantage of perineotomy is that it permits the diagnosis and removal of these various subperitoneal growths without incising either the vagina or the rectum, and hence avoids the evil consequences of fistulæ, especially those of the latter canal.

The Development of the Hymen.

Schaeffer (*Archiv für Gynäkologie*, Bd. xxxvii. Heft 2) has made a careful study of this subject, based upon the examination of the genitalia in nearly two hundred fœtuses. He found that in every instance the hymen as early as the fifth month was composed of two lamellæ, the inner being derived from the vagina, the outer from the folding in of the vulva; in many cases the two layers coalesced, but they sometimes remained distinct until birth, though seldom later. The fœtal hymen had on its inner (upper) surface transverse folds similar to those in the vagina; between the folds were often formed small pockets, from which cysts of the hymen might form. Irregularities in the distribution of these folds account for certain anomalies in the hymen (*hymen crenelatus, dentatus, carinatus, falciformis*, etc.). On the outer (lower) surface of the fœtal hymen numerous folds were found, which extended from the fossa navicularis, nymphæ, clitoris, and meatus. The writer summarizes the arguments in favor of the bilamellar origin of the hymen as follows: 1. In over one-fourth of the specimens the lamellæ were clearly demonstrated; 2. The outer lamella was proved to be developed from the folds which radiated from the region of the vestibule; 3. Various stages in the union of the two lamellæ were observed; 4. The outer lamella had the same color and epithelial covering as the vestibule, the inner that of the vaginal mucosa.

Hydrastinin in Uterine Hemorrhage.

Falk (*Archiv für Gynäkologie*, Bd. xxxvii. Heft 2) reports twenty-eight cases of hemorrhage treated by this drug, eight of which were due to the presence of fibro-myomata. He found it most useful in cases of hyperplastic endometritis and congestive dysmenorrhœa; it was less reliable in cases of fibro-myoma and chronic metritis. It should be administered before the expected flow, preferably by hypodermic injection, in doses of from three-quarters of a grain to a grain and a half (in a ten per cent. aqueous solution). Two injections of the former amount may be given weekly in cases of fibroids until the week preceding menstruation, when they should be given daily; during the flow the dose should be increased to a grain and a half daily in half a syringeful of water. No bad effects followed the injections, except slight nausea in one instance, and passing faintness in another. No abscess occurred in five hundred injections; they were somewhat painful, but much less so than injections of ergotin.

Muriate of hydrastinin acts more powerfully than the fluid extract of hydrastis, probably by causing contraction of the arterioles. This was observed in rabbits, and was inferred in the human subject on account of the increase of the blood-pressure noted after an injection. The diminution of the blood-supply to the uterus causes uterine contractions which still further increase the local anæmia; painful contractions were repeatedly noted.

Dissecting Metritis.

Hoechstenbach (*Archiv für Gynäkologie*, Bd. xxxvii. Heft 2) reports a case of this rare affection, to which he adds seven others collected from the

literature. The subject is discussed at length, with especial reference to etiology. The diagnosis is confirmed by the casting off of portions of the necrosed uterine wall; these are to be distinguished from the products of conception, and from the decidua thrown off in extra-uterine gestation. In regard to treatment great caution is enjoined in using intra-uterine injections, lest the uterus be ruptured.

A New Method of Treating Fibro-myoma.

Rydygier (*Wiener klin. Wochenschrift*, 1889, No. 10) recommends ligation of the ovarian and uterian arteries, instead of castration. He splits the broad ligaments and ties the arteries; the round ligament is also included in a ligature. In a case in which this operation was performed the tumor was reduced to one-fourth of its former size within four months.

TENTH INTERNATIONAL MEDICAL CONGRESS.

In accordance with the decision of the Ninth Congress at Washington, the Tenth International Medical Congress will be held at Berlin from the 4th to the 9th of August, 1890.

The delegates of the German Medical Faculties and the Chief Medical Societies of the German Empire, have appointed a General Committee of Organization. A Special Committee of Organization has also been appointed for each of the different sections, to arrange the scientific problems to be discussed at the meetings of the respective sections.

An International Medical and Scientific Exhibition will also be held by the Congress.

A cordial invitation to attend the Congress has been extended by this Committee to the physicians of all countries.

The following are the officers of the General Committee:

President, Dr. Rudolph Virchow.
Vice-Presidents, Dr. von Bergmann, Dr. Leyden, Dr. Waldeyer.
Secretary-General, Dr. Lassar.

All communications must be directed to the Secretary-General, Berlin, N. W., Karlstrasse 19.

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All communications should be addressed to

Dr. I. Minis Hays, No. 266 South Twenty-first Street, Philadelphia.

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After citing other cases, one of Sciatica where the patient was suffering such pain that the slightest motion caused faintness with nausea and continuous vomiting; two with acute Rheumatism, and one with Neuralgia of the stomach, Dr. Price continues:

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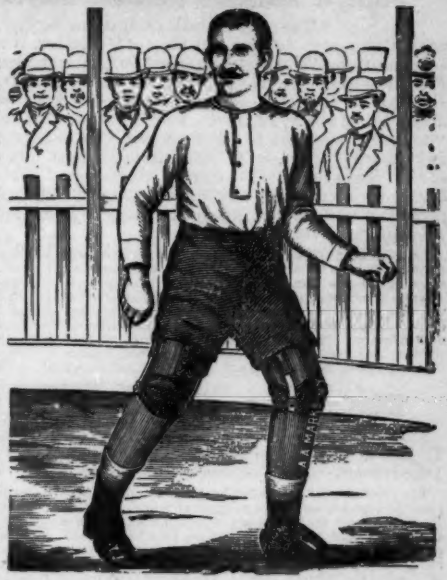

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INCREASE IN BENEFITS TO POLICY HOLDERS	1,148,051 61
INCREASE IN SURPLUS FOR DIVIDENDS	1,716,849 01
INCREASE IN PREMIUMS	3,458,330 35
INCREASE IN TOTAL INCOME	3,761,983 41
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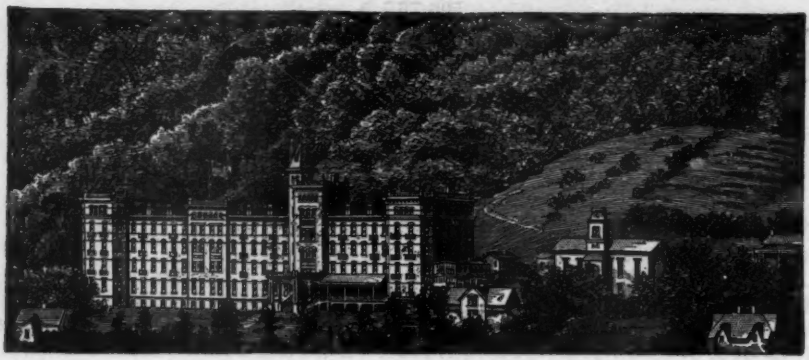

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In the Treatment of Stone in the Bladder—Its Solvent Properties—Its Value in Bright's Disease, Cystitis, etc.

By JOHN HERBERT CLAIBORNE, M.A., M.D., of Petersburg, Va.

Ex-President and Honorary Fellow Medical Society of Virginia, etc.

(Reprint from the *Virginia Medical Monthly* for December, 1889.)

I have for many years been prescribing the use of the Buffalo Lithia Water in cases of lithiasis, uræmia, Bright's disease, cystitis, and of congeneric affections, and with the same marked results which have followed its exhibition in like conditions by a number of other physicians. The most striking instance, however, in which I have seen the solvent properties of the waters manifested has been in the case of Mr. Thos. D. Moss, of this city. Mr. Moss had been subject to attacks of lithiasis for several years; but, in August last, after one of the most violent attacks of nephritic colic, passed gravel from the kidney into the bladder, where it remained for a week or more, setting up a severe inflammation of that viscus, with all of its painful and distressing symptoms. Finally, however, the gravel recommenced its journey, and became lodged in the prostatic portion of the urethra, cutting off the flow of urine and causing retention. Being compelled to use a catheter for the relief of this symptom, I pushed the calculus back into the bladder, as there was too much inflammation to resort to either the crushing of the stone or to its removal by lithotomy.

I put the patient to bed, restricted him to a milk diet, administered opium suppositories, in sufficient doses to relieve vesical tenesmus and pain, and directed him to drink the Buffalo Lithia Water in the largest quantities which he could bear. He succeeded in drinking from a half gallon to a gallon every twenty-four hours, and, at the end of about ten days, commenced to pass the detrita of the gravel, as I suppose, in quantities which seemed incredible. At all events, after passing his water upon a clean board, and allowing as much of it to flow off as would, you could then scrape up with a knife a teaspoonful or two (after every passage of urine) of phosphates, urates, etc., closely resembling whitewash which had been applied to the board, and which had there dried.

This continued for a week. I then washed out the bladder several times with a warm solution of boracic acid, and Mr. Moss was soon on his feet again. At this writing, he says that he is perfectly well, and feels, for the first time in many years, entirely free from all kidney or bladder trouble.

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THERE is perhaps no medical scientist in the civilized world more competent for the task of undertaking a work such as the one under notice than the accomplished author whose name stands first upon the title page of the "National Medical Dictionary." That Dr. Billings, whose ripe scholarship and familiarity with general medical literature are universally acknowledged, should bestow his *imprimatur* upon a work, especially of the class to which this belongs, is sufficient to guarantee its excellence. Its scope is one which will at once satisfy the student and meet all the requirements of the medical practitioner. Clear and comprehensive definitions of words should form the prime feature of any dictionary, and in this one the chief aim seems to be to give the exact signification and the different meanings of terms in use in medicine and the collateral sciences in language as terse as is compatible with lucidity. The utmost brevity and conciseness have been kept in view. The work is remarkable, too, for its fulness. The enumerations and subdivisions under each word heading are strikingly complete, as regards alike the English tongue and the languages chiefly employed by ancient and modern science. It is impossible to do justice to the dictionary by any casual illustration. It presents to the English reader a thoroughly scientific mode of acquiring a rich vocabulary and offers an accurate and ready means of reference in consulting works in either of the three modern continental languages which are richest in medical literature. Numerous illustrations of interesting and important words, not generally known, but in common use in many parts of the country, might be given from this work.

To add to its usefulness as a work of reference some valuable tables are given, dealing with doses, antidotes, thermometric scales, inch and metre system of numbering spectacle glasses, average dimensions of the foetus at different ages, the weight of the organs of the human body, and some others. These tables are not mere compilations, but are the result of a considerable amount of new experimental study. Another feature of the work is the accuracy of its definitions, all of which have been checked by comparison with many other standard works in the different languages it deals with. Dr. Billings and his eminent collaborateurs have had access to all the literature of the civilized world, and have employed exceptional industry and capacity for acquiring and systematising the knowledge which of necessity is obtained only from a very wide field of research. Apart from the boundless stores of information which may be gained by the study of a good dictionary, one is enabled by the work under notice to read intelligently any technical treatise in either of the four chief modern languages. There cannot be two opinions as to the great value and usefulness of this dictionary as a book of ready reference for all sorts and conditions of medical men. So far as we have been able to see, no subject has been omitted, and in respect of completeness it will be found distinctly superior to any medical lexicon yet published.

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